

MATERIAL MONITOR MANUAL CB-6000-RGT



Manual covers assemblies: **CB-6000-RGT-APS**
 CB-6000-RGT-HV
 CB-6000-RGT-PAT
 CB-6000-RGT-UPS



MagnumVenusProducts™

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MagnumVenusProducts™

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Terms & Conditions of Sale:

GSSC, Inc.'s Terms & Conditions of Sale ("Terms & Conditions") 588284v4

1. ACCEPTANCE: Acceptance of any purchase order from a customer or potential customer ("Buyer") is subject to credit approval by GSSC, Inc. ("Seller"), acceptance of the purchase order by Seller and, when applicable, any manufacturer, vendor, or other third party that provides goods to Seller for resale to Buyer ("Vendor"). If Seller, in its sole discretion, determines that Buyer's credit becomes unsatisfactory or it has reasonable grounds for insecurity, Seller reserves the right, upon notice to Buyer, to demand adequate assurance of due performance from Buyer and/or terminate any purchase order with no liability to Seller. BY REQUESTING A QUOTE FROM SELLER, ACCEPTING AN INVOICE FROM SELLER, OR PRESENTING A PURCHASE ORDER TO SELLER, BUYER CONFIRMS THAT THESE TERMS & CONDITIONS SHALL GOVERN ALL PURCHASES OF PRODUCTS OR MATERIALS PROVIDED TO BUYER BY SELLER ("GOODS"). GOODS SOLD BY SELLER ARE EXPRESSLY SUBJECT TO THE TERMS AND CONDITIONS SET FORTH HEREIN AND ANY DIFFERENT OR ADDITIONAL TERMS OR CONDITIONS SET FORTH IN A PURCHASE ORDER OR SIMILAR COMMUNICATION RECEIVED FROM BUYER ARE OBJECTED TO AND SHALL NOT BE BINDING UPON SELLER UNLESS SPECIFICALLY AGREED TO IN WRITING BY AN AUTHORIZED CORPORATE OFFICER OF SELLER. NO SELLER EMPLOYEE OR AGENT HAS THE AUTHORITY TO MODIFY THESE TERMS & CONDITIONS VERBALLY. SELLER OBJECTS TO AND REJECTS ANY TERMS BETWEEN BUYER AND ANY OTHER PARTY, AND NO SUCH TERMS, INCLUDING BUT NOT LIMITED TO ANY GOVERNMENT REGULATIONS OR "FLOWDOWN" TERMS, SHALL BE A PART OF OR INCORPORATED INTO ANY PURCHASE ORDER FROM BUYER TO SELLER, UNLESS AGREED TO IN WRITING BY AN AUTHORIZED REPRESENTATIVE OF SELLER.

2. PRICES AND TAXES: Buyer agrees to pay the prices quoted by Seller or listed on any related invoice, and is responsible for additional applicable shipping and handling charges, taxes, duties, and charges for import and export licenses and certificates. All prices quoted by Seller are subject to change without notice. Seller will generally collect applicable taxes along with the purchase price unless Buyer submits a valid tax exemption certificate, and indicates which Goods are covered by it. Prices on special-order Goods may be subject to change before shipment. In order to be corrected, any discrepancies in pricing and/or quantities on invoices must be reported by Buyer within thirty (30) days of the invoice date.

3. PAYMENT: Payment terms are 30 days net from the invoice date or upon such other terms approved by Seller in writing. Retainage shall not apply, and Buyer shall not hold back any retainage from Seller, even if retainage is part of any contract between Buyer and any other party. Payment is not contingent on Buyer's ability to collect or obtain funds from any other party. Credit card sales are billed at the time of purchase. Buyer expressly represents it is solvent at the time it places any purchase order with Seller. Seller, in its sole discretion, may determine that Buyer's financial condition requires full or partial payment prior to manufacture or shipment. If Buyer fails to make any payment when due, Seller reserves the right to suspend performance. Buyer agrees to pay a charge on all amounts past due at the rate of 1 1/2% per month (18% per year) or the maximum lawful rate, whichever is less. In the event of non-payment, Buyer agrees to pay Seller's reasonable attorney fees and court costs, if any, incurred by Seller to collect payment, and all applicable interest charges. Seller may apply payments to any outstanding invoices unless Buyer provides specific payment direction.

4. TITLE AND RISK OF LOSS OR DAMAGE: As to Goods delivered directly by Seller, title passes upon delivery at the place Buyer receives possession; and, thereafter, all risk of loss or damage shall be on Buyer. All other sales are F.O.B., point of shipment, and Buyer takes title and assumes responsibility for risk of loss or damage at the point of shipment for such sales. Claims for Goods damaged in transit are Buyer's sole responsibility when not delivered directly by Seller.

5. QUOTATIONS: All quotations expire thirty (30) days from the date of the quotation unless otherwise noted on the quotation. This time limit applies even if Buyer uses the quotation to submit a job or project bid to any other party.

6. ASSIGNMENT: The Buyer's rights and responsibilities under any purchase order or these Terms & Conditions shall not be assigned by Buyer without the express written consent of the Seller.

7. RETURN OF GOODS: Permission to return items must be requested and granted in advance. No credit will be given if items are returned prior to requesting and receiving permission. Subject to the foregoing, Seller shall accept returns of Goods for any reason for a period of thirty (30) days following shipment for exchange or refund of the purchase price; provided, that such Goods must be unused and are subject to a 15% restocking charge, which may be increased or decreased, in the Seller's sole discretion, depending on the reason for such return. Any Goods which were special ordered by Buyer are may not be returned, and any such Goods which are returned are subject to a restocking/cancellation fee of 100% of the cost of the Goods. Goods shall be deemed accepted by Buyer (and cannot thereafter be returned), if Buyer fails to object to the Goods within thirty (30) days after the Goods are received by Buyer.

8. CANCELLATION: The Buyer may cancel any purchase order prior to shipment of the Goods by mutual agreement of the parties and upon payment to Seller of reasonable and proper cancellation charges.

9. TERMINATION: Seller may terminate the whole or any part of any purchase order if there is a material breach of these Terms & Conditions. In the event of any such breach, the Seller will provide Buyer with written notice of the nature of the breach and the Seller's intention to terminate for default. In the event Buyer does not cure such failure within ten (10) days of such notice, Seller may, by written notice, terminate the purchase order; provided, that Buyer shall continue its performance to the extent not terminated.

10. CHANGE IN BUYER'S FINANCIAL CONDITION: Seller reserves the right to cancel any order or to require full or partial payment in advance without liability to Seller in the event of: (i) insolvency of the Buyer; (ii) the filing of voluntary petition in bankruptcy by Buyer; (iii) the appointment of a Receiver or Trustee for the Buyer; (iv) the execution by Buyer of an assignment for benefit of creditors; or (v) past due payment on previous shipments to Buyer by Seller. Seller reserves the right to cancel Buyer's credit at any time for any reason.

11. INTERPRETATION RESPONSIBILITY; PRODUCT USE AND SAFETY: Seller does not guarantee that the Goods it sells conform to any plans and specifications or intended use. When plans and specifications are involved, Buyer is solely responsible for verifying Seller's interpretations of such plans and specifications, and it is Buyer's sole responsibility to assure that Seller's Goods will be acceptable for any specific job. When Seller offers substitute Goods on any proposal, Buyer is solely responsible for confirming their acceptability.

12. DELIVERY: Shipping dates given in advance of actual shipment are approximate and not guaranteed. All contract dates and timelines begin upon receipt by Seller of a purchase order, Buyer's acceptance of these Terms & Conditions, and the payment of any required down payment.

13. EXCUSABLE DELAYS: Seller shall have no liability if its performance is delayed or prevented by causes beyond its reasonable control, including, without limitation, acts of nature, labor disputes, government priorities, transportation delays, insolvency or other inability to perform by any Vendor, or any other commercial impracticability. In the event of any such delay, the date of delivery or performance shall be extended for a period equal to the time lost by reason of delay. If Goods are held or stored beyond the delivery date for the convenience of Buyer, such Goods shall be so stored at the risk and expense of Buyer.

14. CLAIMS: Claims for any nonconforming Goods must be made by Buyer, in writing, within ten (10) days of Buyer's receipt of such Goods and must state with particularity all material facts concerning the claim then known to Buyer. Failure by Buyer to give notice within such ten (10) day period shall constitute an unqualified acceptance of such Goods by Buyer, and a waiver of any right to reject or revoke acceptance of such Goods.



15. WARRANTIES:

(a) **SELLER'S WARRANTIES:** Seller warrants that all Goods sold shall mechanically operate as specified and shall be free from faults in respect to materials and workmanship for a period of: (i) for parts, twelve (12) months from the date of invoice, and (ii) for systems, twelve (12) months from start-up, or, if earlier, eighteen (18) months from the date of the bill of lading. Seller also warrants that the Goods shall, upon payment in full by Buyer for the Goods, be free and clear of any security interests or liens. Buyer's exclusive remedy for breach of such warranties shall be limited to repair or replacement costs or termination of any security interests or liens, and Seller shall have no responsibility for reimbursing repair costs incurred by Buyer in connection with Goods without first giving written authorization for such charges. In any claims by the Buyer against the Seller in respect of the Goods, the liability of the Seller shall be limited to the value of the Goods. This warranty applies only to Goods properly used and maintained and does not apply to any Goods which are misused or neglected, or which has been installed, operated, repaired, altered or modified other than in accordance with instructions or written authorization by Seller. This warranty does not apply to any Goods not manufactured by Seller, and Buyer's sole warranty with respect to such Goods shall be that of the Seller's Vendor, if any.

(b) **VENDOR'S WARRANTIES:** Seller shall assign to Buyer any Vendor warranties and/or remedies provided to Seller by its Vendor.

(c) **INTELLECTUAL PROPERTY INFRINGEMENT:** SELLER DISCLAIMS ANY AND ALL WARRANTIES AND/OR INDEMNIFICATIONS AGAINST INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS OF ANY NATURE. SELLER SHALL, IF GIVEN PROMPT NOTICE BY BUYER OF ANY CLAIM OF INTELLECTUAL PROPERTY INFRINGEMENT WITH RESPECT TO ANY GOODS SOLD HEREUNDER, REQUEST THE APPLICABLE VENDOR TO GRANT FOR THE BUYER SUCH WARRANTY OR INDEMNITY RIGHTS AS SUCH VENDOR MAY CUSTOMARILY GIVE WITH RESPECT TO SUCH GOODS.

(d) **LIMITATIONS:** THERE ARE NO OTHER WARRANTIES WRITTEN OR ORAL, EXPRESS, IMPLIED OR BY STATUTE. SELLER SPECIFICALLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO REPAIR OF GOODS OR OTHER COSTS ARE ASSUMED BY SELLER UNLESS AGREED TO, IN ADVANCE, IN WRITING.

16. LIMITATIONS OF LIABILITY: UNLESS APPLICABLE LAW OTHERWISE REQUIRES, SELLER'S AND ANY VENDOR'S TOTAL LIABILITY TO BUYER, BUYER'S CUSTOMERS OR TO ANY OTHER PERSON, RELATING TO ANY PURCHASES GOVERNED BY THESE TERMS & CONDITIONS, FROM THE USE OF THE GOODS FURNISHED OR FROM ANY ADVICE, INFORMATION OR ASSISTANCE PROVIDED BY SELLER (BY ANY METHOD, INCLUDING A WEB SITE), IS LIMITED TO THE PRICE OF THE GOODS GIVING RISE TO THE CLAIM. NEITHER SELLER NOR ITS VENDORS SHALL BE LIABLE FOR ANY SPECIAL, INCIDENTAL, DIRECT, CONSEQUENTIAL OR PENAL DAMAGES, INCLUDING, BUT NOT LIMITED TO BACKCHARGES, LABOR COSTS, COSTS OF REMOVAL, REPLACEMENT, TESTING OR INSTALLATION, LOSS OF EFFICIENCY, LOSS OF PROFITS OR REVENUES, LOSS OF USE OF THE GOODS OR ANY ASSOCIATED GOODS, DAMAGE TO ASSOCIATED GOODS, LATENESS OR DELAYS IN DELIVERY, UNAVAILABILITY OF GOODS, COST OF CAPITAL, COST OF SUBSTITUTE GOODS, FACILITIES OR SERVICES, DOWNTIME, OR CLAIMS FROM BUYER'S CUSTOMERS OR OTHER PARTIES. IF SELLER FURNISHES BUYER WITH ADVICE OR OTHER ASSISTANCE WHICH CONCERNS ANY GOODS SUPPLIED HEREUNDER, OR ANY SYSTEM OR EQUIPMENT IN WHICH ANY SUCH GOODS MAY BE INSTALLED, AND WHICH IS NOT REQUIRED PURSUANT TO THESE TERMS & CONDITIONS, THE FURNISHING OF SUCH ADVICE OR ASSISTANCE WILL NOT SUBJECT SELLER TO ANY LIABILITY, WHETHER BASED ON CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE) OR OTHER GROUNDS.

17. BUYER'S USE OF GOODS: Many factors beyond Seller's control contribute to the success of the Buyer's finished products, such as raw materials used to manufacture the products. Seller is not liability for the quality or quantity of finished products produced by Buyer with the use of the Goods.

18. EXPORTS: If Goods are sold for export, Seller's standard terms & condition for export sales, if any, shall also apply. Acceptance of export orders is not valid unless confirmed in writing by Seller. Buyer, and not Seller, is responsible for compliance with all United States export control rules and regulations. Buyer shall not name Seller as shipper or exporter of record in connection with the export of any Goods purchased from Seller.

19. INSTALLATION: Installation of the Goods is the responsibility of Buyer, unless otherwise indicated in the quotation or invoice provided to Buyer. Notwithstanding the foregoing, however, Seller will provide installation supervision personnel within thirty (30) days of Buyer's request. If an installation for which the Seller is to participate is delayed by the Buyer more than six (6) months after the date of shipment of the Goods, or if Buyer's facility, materials, or parts are not prepared for installation for such period of time, Seller shall be entitled to invoice the Buyer for the anticipated installation costs, up to \$1,250 per day plus expenses, for each of Seller's installations technicians which are on site.

20. ANTI-MONEY LAUNDERING RESTRICTIONS: Seller rejects questionable purchase orders and payments: Except for pre-approved credit arrangements, Seller rejects third-party payments, cashiers' checks, money orders and bank drafts. Seller accepts only checks imprinted with Buyer's name; wire transfers originated in Buyer's account; letters of credit with Buyer as account party; and credit or debit cards in Buyer's name. All payments must be by single instrument in the amount of the invoice, less credits, from banks acceptable to Seller.

21. GOVERNING LAW: These Terms & Conditions and all disputes related to it shall be governed by the laws of the State of Florida, United States of America, without giving effect to its conflict of law rules.

22. JURISDICTION AND VENUE: The parties hereby irrevocably submit to the jurisdiction of the state courts of the State of Florida and to the jurisdiction of the United States District Court for the Middle District of Florida, for the purpose of any suit, action, or other proceeding related to, arising out of or based upon these Terms & Conditions or in any way related to, arising out of or involving sale of Goods hereunder; waive and agree not to assert by way of motion, as a defense, or otherwise, in any such suit, action, or proceeding, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that the suit, action, or proceeding is brought in any inconvenient forum, that the venue of the suit, action, or proceeding is improper, or that these Terms & Conditions or the subject matter hereof may not be enforced in or by such court; and waive and agree not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such Florida state or federal court. The parties hereby consent to service of process by registered mail at the address to which notice is to be given. The exclusive venue for any proceeding under these Terms & Conditions shall be solely in any state court in Pinellas County, Florida, or the Federal District Court for the Middle District of Florida, Tampa Division, sitting in Tampa, Florida. Buyer acknowledges that the prices for Goods offered hereunder are in part dependent on Buyer's consent to jurisdiction in Florida and exclusive venue in Pinellas County, Florida or the Federal District Court for the Middle District of Florida, Tampa Division, sitting in Tampa, Florida, and without Buyer's consent to this jurisdiction and venue provision the prices for the Goods may be higher.

23. GENERAL: Any representation, affirmation of fact and course of dealing, promise or condition in connection therewith or usage of trade not contained herein, shall not be binding on either party. If any provision hereof shall be unenforceable, invalid or void for any reason, such provision shall be automatically voided and shall not be part of these Terms & Conditions and the enforceability or validity of the remaining provisions of these Terms & Conditions shall not be affected thereby.

TO THE EXTENT NOT CONTRARY TO APPLICABLE LAW, THE FOLLOWING SHALL APPLY:

24. Buyer waives any available homestead exemption as well as any and all requirements or rights with regard to notice, demand, presentment.

IMPORTANT NOTICE: THIS INSTRUMENT PERMITS SELLER TO OBTAIN AND USE YOUR INDIVIDUAL CREDIT HISTORY FOR CREDIT EVALUATION PURPOSES.





SAFETY & WARNING INFORMATION:

OPERATING YOUR POLYESTER SYSTEM SAFELY



1. Introduction

Any tool, if used improperly, can be dangerous. Safety is ultimately the responsibility of those using the tool. In like manner, safe operation of polyester processes is the responsibility of those who use such processes and those who operate the equipment. This manual outlines procedures to be followed in conducting polyester operations safely. This system has been specifically designed for use of Polyester Resin, Gel-Coat, and Methyl Ethyl Ketone Peroxides (MEKP) applications. Other formulations or blends considered for use in this equipment is strictly prohibited without the expressed consent by Magnum Venus Products Inc. Magnum Venus Products cannot eliminate every danger nor foresee every circumstance that might cause an injury during equipment operation. Some risks, such as the high pressure liquid stream that exits the spray tip, are inherent to the nature of the machine operation and are necessary to the process in order to manufacture the end-product. For this reason, ALL personnel involved in polyester operations should read and understand the Safety Manual. It is very important for the safety of employees involved in the operation that equipment operators, maintenance and supervisory personnel understand the requirements for safe operation. Each user should examine his own operation, develop his own safety program and be assured that his equipment operators follow correct procedures. Magnum Venus Products hopes that this manual is helpful to the user and recommends that the precautions in this manual be included in any such program. Magnum Venus Products recommends this Safety Manual remain on your equipment at all times for your personnel safety. In addition to the manual, Magnum Venus Products recommends that the user consult the regulations established under the Occupational Safety & Health Act (OSHA), particularly the following sections:

1910.94 Pertaining to Ventilation.

1910.106 Pertaining to flammable liquids

1910.107 Pertaining to spray finishing operations, particularly Paragraph (m) Organic Peroxides and Dual Component Coatings.

Other standards and recognized authorities to consult are the National Fire Protection Association (NFPA) bulletins as follows:

NFPA No.33 Chapter 14, Organic Peroxides and Dual Component Materials

NFPA No.63 Dust Explosion Prevention

NFPA No.70 National Electrical Code

NFPA No.77 Static Electricity

NFPA No.91 Blower and Exhaust System

NFPA No.654 Plastics Industry Dust Hazards



Type of Fire Extinguishing equipment recommended: Fire Extinguisher – code ABC, rating number 4a60bc.

Extinguishing Media – Foam, Carbon Dioxide, Dry Chemical, Water Fog.

Copies of the above bulletins are available, at a nominal charge from:

National Fire Protection Association
470 Atlantic Avenue
Boston, MA 02210



Research Report No.11 of the American Insurance Association deal with “Fire, Explosion and Health Hazards of Organic Peroxides”. It is published by:

American Insurance Association
85 John Street
New York, NY 10038

Local codes and authorities also have standards to be followed in the operation of your spraying equipment. Your insurance carrier will be helpful in answering questions that arise in your development of safe procedures.

1.2 Personal Safety Equipment

Magnum Venus Products recommends the following Personal Safety Equipment for conducting safe operations of the Polyester Systems:

Magnum Venus Products recommends that the user consult the state and local regulations established for all Safety equipment listed.

2.0 Material Safety

2.1 Hazards Associated with Laminating Operations

The major hazards which should be guarded against in polyester laminating operations are those associated with:

1. The flammability and explosion dangers of the catalyst normally used – Methyl Ethyl Ketone Peroxide (MEKP).
2. The flammability dangers of clean-up solvents sometimes used (Magnum Venus Products recommends that clean-up solvents be non-flammable), and of resin diluents used, such as styrene.
3. The flammability dangers of catalyst diluents, if used. (Magnum Venus Products recommends that catalyst not be diluted.
4. The flammability dangers of the uncured liquid resins used.
5. The combustibility dangers of the cured laminate, accumulations of over spray, and laminate sandings.
6. The toxicity dangers of all the chemicals used in laminating operations with respect to ingestion, inhalation and skin and eye hazards.

2.2 Catalyst (Methyl Ethyl Ketone Peroxide)

MEKP is among the more hazardous materials found in commercial channels. The safe handling of the “unstable (reactive)” chemicals presents a definite challenge to the plastics industry. The highly reactive property which makes MEKP valuable to the plastics industry in producing the curing reaction of polyester resins also produces the hazards which require great care and caution in its storage, transportation, handling, processing and disposal. MEKP is a single chemical. Various polymeric forms may exist which are more or less hazardous with respect to each other. These differences may arise not only from different molecular structures (all are, nevertheless, called “MEKP”) and from possible trace impurities left from the manufacture of the chemicals, but may also arise by contamination of MEKP with other materials in its storage or use. Even a small amount of contamination with acetone, for instance, may produce an extremely shock-sensitive and explosive compound.

Contamination with promoters or materials containing promoters, such as laminate sandings, or with any readily oxidizing material, such as brass or iron, will cause exothermic “redox” reactions which can become explosive in nature. Heat applied to MEKP, or heat build-up from contamination reactions can cause it to reach what is called its Self-Accelerating Decomposition Temperature (SADT).



Researchers have reported measuring pressure rates-of-rise well in excess of 100,000 psi per second when certain MEKP's reach their SADT. (For comparison, the highest pressure rate-of-rise listed in NFPA Bulletin NO.68, “Explosion Venting”, is 12,000 psi per second for an explosion of 12% acetylene and air. The maximum value listed for a hydrogen explosion is 10,000 psi per second. Some forms of MEKP, if allowed to reach their SADT, will burst even an open topped container. This suggests that it is not possible to design a relief valve to vent this order of magnitude of pressure rate-of-rise. The user should be aware that any closed container, be it a pressure vessel, surge chamber, or pressure accumulator, could explode under certain conditions. There is no engineering substitute for care by the user in handling organic peroxide catalysts. If, at any time, the pressure relieve valve on top of the catalyst tank should vent, the area should be evacuated at once and the fire department called. The venting could be the first indication of a heat, and therefore, pressure build-up that could eventually lead to an explosion. Moreover, if a catalyst tank is sufficiently full when the pressure relief valve vents, some catalyst may spray out, which could cause eye injury. For this reason, and many others, anyone whose job puts them in an area where this vented spray might go, should always wear full eye protection even when laminating operations are not taking place.

Safety in handling MEKP depends to a great extent on employee education, proper safety instructions and safe use of the chemicals and equipment. Workers should be thoroughly informed of the hazards that may result from improper handling of MEKP, especially in regards to contamination, heat, friction and impact. They should be thoroughly instructed regarding the proper action to be taken in the storage, use and disposal of MEKP and other hazardous materials used in the laminating operation. In addition, users should make every effort to:

- A. Store MEKP in a cool, dry place in original containers away from direct sunlight and away from other chemicals.
- B. Keep MEKP away from heat, sparks and open flames.

- C. Prevent contamination of MEKP with other materials, including polyester over spray and sandings, polymerization accelerators and promoters, brass, aluminum and non-stainless steels.
- D. Never add MEKP to anything that is hot, since explosive decomposition may result.
- E. Avoid contact with skin, eyes and clothing. Protective equipment should be worn at all times. During clean-up of spilled MEKP, personal safety equipment, gloves and eye protection must be worn. Firefighting equipment should be at hand and ready.
- F. Avoid spillage, which can heat up to the point of self-ignition.
- G. Repair any leaks discovered in the catalyst system immediately, and clean up the leaked catalyst at once in accordance with the catalyst manufacturer's instructions.
- H. Use only original equipment or equivalent parts from Magnum Venus Products in the catalyst system (i.e.: hoses, fitting, etc.) because a dangerous chemical reaction may result between substituted parts and MEKP.
- I. Catalyst accumulated from the purging of hoses or the measurement of fluid output deliveries should never be returned to the supply tank, such catalyst should be diluted with copious quantities of clean water and disposed of in accordance with the catalyst manufacturer's instructions.

The extent to which the user is successful in accomplishing these ends and any additional recommendations by the catalyst manufacturer determines largely the safety that will be present in his operation.

2.3 Clean-Up Solvents and Resin Diluents

WARNING

A hazardous situation may be present in your pressurized fluid system! Hydrocarbon Solvents can cause an explosion when used with aluminum or galvanized components in a closed (pressurized) fluid system (pump, heaters, filters, valves, spray guns, tanks, etc.). The explosion could cause serious injury, death and/or substantial property damage. Cleaning agents, coatings, paints, etc. may contain Halogenated Hydrocarbon Solvents. Some Magnum Venus Products spray equipment includes aluminum or galvanized components and will be affected by Halogenated Hydrocarbon Solvents.



- A. There are three key elements to the Halogenated Hydrocarbon (HHC) solvent hazard.
 - a. The presence of HHC solvents. 1,1,1 – Trichloroethane and Methylene Chloride are the most common of these solvents. However, other HHC solvents are suspect if used; either as part of paint or adhesives formulation, or for clean-up flushing. b. Aluminum or Galvanized Parts. Most handling equipment contains these elements. In contact with these metals, HHC solvents could generate a corrosive reaction of a catalytic nature.
 - b. Equipment capable of withstanding pressure. When HHC solvent contacts aluminum or galvanized parts inside a closed container such as a pump, spray gun, or fluid handling system, the chemical reaction can, over time, result in a build-up of heat and pressure, which can reach explosive proportions.



When all three elements are present, the result can be an extremely violent explosion. The reaction can be sustained with very little aluminum or galvanized metal; any amount of aluminum is too much.

A. The reaction is unpredictable. Prior use of an HHC solvent without incident (corrosion or explosion) does NOT mean that such use is safe. These solvents can be dangerous alone (as a clean-up or flushing agent) or when used as a component or a coating material. There is no known inhibitor that is effective under all circumstances. Furthermore, the mixing of HHC solvents with other materials or solvents, such as MEKP, alcohol, and toluene, may render the inhibitors ineffective.

B. The use of reclaimed solvents is particularly hazardous. Reclaimers may not add any inhibitors. Also, the possible presence of water in reclaimed solvents could feed the reaction.

C. Anodized or other oxide coatings cannot be relied upon to prevent the explosive reaction. Such coatings can be worn, cracked, scratched, or too thin to prevent contact. There is no known way to make oxide coatings or to employ aluminum alloys, which will safely prevent the chemical reaction under all circumstances.

D. Several solvent suppliers have recently begun promoting HHC solvents for use in coating systems. The increasing use of HHC solvents is increasing the risk. Because of their exemption from many State Implementation Plans as Volatile Organic Compounds

(VOC's), their low flammability hazard, and their not being classified as toxic or carcinogenic substances, HHC solvents are very desirable in many respects.

WARNING: Do not use Halogenated Hydrocarbon solvents in pressurized fluid systems having aluminum or galvanized wetted parts.



NOTE: Magnum Venus Products is aware of NO stabilizers available to prevent Halogenated Hydrocarbon solvents from reaction under all conditions with aluminum components in closed fluid system. TAKE IMMEDIATE ACTION... Halogenated Hydrocarbon solvents are dangerous when used with aluminum components in a closed fluid system.

A. Consult your material supplier to determine whether your solvent or coating contains Halogenated Hydrocarbon Solvents.

B. Magnum Venus Products recommends that you contact your solvent supplier regarding the best non-flammable clean-up solvent with the heat toxicity for your application.

C. If, however, you find it necessary to use flammable solvents, they must be kept in approved, electrically grounded containers.

D. Bulk solvent should be stored in a well-ventilated, separate building, 50 feet away from your main plant.

E. You should allow only enough solvent for one day's use in your laminating area.

F. "NO SMOKING" signs must be posted and observed in all areas of storage or where solvents and other flammable materials are used.

G. Adequate ventilation (as covered in OSHA Section 1910.94 and NFPA No.91) is important wherever solvents are stored or used, to minimize, confine and exhaust the solvent vapors.

H. Solvents should be handled in accordance with OSHA Section 1910.106 and 1910.107.

2.4 Catalyst Diluents

Magnum Venus Products spray-up and gel-coat systems currently produced are designed so that catalyst diluents are not required. Magnum Venus Products, therefore, recommends that diluents not be used. This avoids the possible contamination which could lead to an explosion due to the handling and mixing of MEKP and diluents. In addition, it eliminates any problems from the diluents being contaminated through rust particles in drums, poor quality control on the part of the diluents suppliers, or any other reason. If, however, diluents are absolutely required, contact your catalyst supplier and follow his instructions explicitly. Preferable, the supplier should premix the catalyst to prevent possible "on the job" contamination while mixing.

WARNING

If diluents are not used, it should be remembered that catalyst spillage, gun, hose and packing leaks are potentially more hazardous, since each drop contains a higher concentration of catalyst, and therefore will react quicker with over spray and the leak.

2.5 Cured Laminate, Overspray and Laminate Sandings Accumulation

A. Remove all accumulations of overspray, FRP sandings, etc. from the building as they occur. If this waste is allowed to build up, spillage of catalyst is more likely to start a fire; in addition, the fire would burn hotter and longer.

B. Floor coverings, if used, should be non-combustible.

C. Spilled or leaked catalyst may cause a fire if it comes in contact with an FRP product, oversprayed chop or resin, FRP sandings or any other material with MEKP.

To prevent this spillage and leakage, you should:

1. Maintain your Magnum Venus Products System. Check the gun several times daily for catalyst and resin packing or valve leaks. **REPAIR ALL LEAKS IMMEDIATELY.**
2. Never leave the gun hanging over, or lying inside the mold. A catalyst leak in this situation would certainly damage the part, possibly the mold, and may cause a fire.
3. Inspect resin and catalyst hoses daily for wear or stress at the entry and exits of the boom sections and at the hose and fittings. Replace if wear or weakness is evident or suspected.
4. Arrange the hoses and fiberglass roving guides so that the fiberglass strands **DO NOT** rub against any of the hoses at any point. If allowed to rub, the hose will be cut through, causing a hazardous leakage of material which could increase the danger of fire. Also, the material may spew onto personnel in the area.

2.7 Toxicity of Chemicals

A. Magnum Venus Products recommends that you consult OSHA Sections 1910.94, 1910.106, 1910.107 and NFPA No.33, Chapter 14, and NFPA No.91.

B. Contact your chemical supplier(s) and determine the toxicity of the various chemicals used as well as the best methods to prevent injury, irritation and danger to personnel.

C. Also determine the best methods of first aid treatment for each chemical used in your plant.

2.8 Treatment of Chemical Injuries

Great care should be used in handling the chemicals (resins, catalyst and solvents) used in polyester systems. Such chemicals should be treated as if they hurt your skin and eyes and as if they are poison to your body. For this reason, Magnum Venus Products recommends the use of protective clothing and eye wear in using polyester systems. However, users should be prepared in the event of such an injury. Precautions include:

1. Know precisely what chemicals you are using and obtain information from your chemical supplier on what to do in the event the chemical gets onto your skin or into the eyes, or is swallowed.
2. Keep this information together and easily available so that it may be used by those administering first aid or treating the injured person.
3. Be sure the information from your chemical supplier includes instructions on how to treat any toxic effects the chemicals have.

WARNING

Contact your doctor immediately in the event of any injury and give him the information you have collected. If your information includes first aid instructions, administer first aid immediately while you are contacting your doctor.



Fast treatment of the outer skin and eyes that contact such chemicals generally includes immediate and thorough washing of the exposed skin and immediate and continuous flushing of the eyes with lots of clean water for at least 15 minutes or more. These general instructions of first aid treatment, however, may be incorrect for some chemicals; that is why you must know the chemicals and treatment before an accident occurs. Treatment for swallowing a chemical frequently depends upon the nature of the chemical.

NOTE: Refer to your System User Manual for complete and detailed operating instructions and service information.

3.0 Equipment Safety

WARNING

Magnum Venus Products suggests that personal safety equipment such as EYE GOGGLES, GLOVES, EAR PROTECTION, and RESPIRATORS be worn when servicing or operating this equipment. Ear protection should be worn when operating a fiberglass chopper to protect against hearing loss since noise levels can be as high as 116 dB (decibels). This equipment should only be operated or serviced by technically trained personnel!



WARNING

Never place fingers, hands, or any body part near or directly in front of the spray gun fluid tip. The force of the liquid as it exits the spray tip can cause serious injury by shooting liquid through the skin. NEVER LOOK DIRECTLY INTO THE GUN SPRAY TIP OR POINT THE GUN AT OR NEAR ANOTHER PERSON. (TREAT THE GUN AS IF IT WERE A LOADED PISTOL.)

3.1 Emergency Stop Procedures

The following steps should be followed in order to stop the machinery in an emergency situation

1. The ball valve located where the air enters the power head of the resin pump, should be moved to the "OFF" or closed position. To do this, simply rotate the lever on the ball valve 90 degrees. Doing this will cause all the system air to bleed out of the system in a matter of a few seconds, making the system incapable of operating

NOTE: Step 2 is a precautionary step and should be followed whenever the above mentioned ball valve is activated to the stop mode. Failure to do so, can damage the regulators and components on reactivating to the "ON" position.

2. Turn all system regulators to the "OFF" position (counter-clockwise) position

NOTE: Verify that the Catalyst relief line, located on the catalyst manifold, and the resin return line, located on the resin filter, are secured relieving catalyst and resin fluid pressure.

3. Catalyst pressure in the catalyst pump can be eliminated by rotating the ball valve on the catalyst manifold 90 degrees to the "open" or "on" position.

Note: The "open" or "on" position is when the ball valve handle is parallel (in line) with the ball valve body. The "closed" or "off" position is when the ball valve handle is perpendicular (across) the ball valve body.

4. Resin pressure in the resin pump can be eliminated by rotating the ball valve on the resin filter 90 degrees to the "open" or "on" position. Place a container under the ball valve to catch any resin that is ejected out of the valve.

3.2 Grounding

Grounding an object means providing an adequate path for the flow of the electrical charge from the object to the ground. An adequate path is one that permits charge to flow from the object fast enough that it will not accumulate to the extent that a spark can be formed. It is not possible to define exactly what will be an adequate path under all conditions since it depends on many variables. In any event, the grounding means should have the lowest possible electrical resistance. Grounding straps should be installed on all loose conductive objects in the spraying area. This includes material containers and equipment. Magnum Venus Products recommends grounding straps be made of AWG No.18 stranded wire as a minimum and the larger wire be used where possible. NFPA Bulletin No77 states that the electrical resistance of such a leakage path may be as low as 1 meg ohm (10 ohms) but that resistance as high as 10,000 meg ohms will produce an adequate leakage path in some cases. Whenever flammable or combustible liquids are transferred from one container to another, or from one container to the equipment, both containers or container and equipment shall be effectively bonded and grounded to dissipate static electricity. For further information, see **National Fire Protection Association** (NFPA) 77, titled "Recommended Practice on Static Electrical". Refer especially to section 7-7 titled "Spray Application of Flammable and Combustible Materials". Check with local codes and authorities for other specific standards that might apply to your application. NEVER USE HARD MATERIALS SUCH AS WIRE, PINS, ETC., TO CLEAR A PLUGGED GUN. HARD MATERIALS CAN CAUSE PERMANENT DAMAGE. DAB WITH A BRISTLE BRUSH, BLOW BACKWARDS WITH AIR UNTIL CLEAR WHILE WEARING A PROTECTIVE EYE SHIELD. REPEAT AS MANY TIMES AS NECESSARY. DO NOT PERFORM ANY MAINTENANCE OR REPAIRS UNTIL YOU HAVE FOLLOWED THE PRECAUTIONS STATED ABOVE. IF YOU, AS AN EQUIPMENT OPERATOR OR SUPERVISOR, DO NOT FEEL THAT YOU HAVE BEEN ADEQUATELY TRAINED OR INSTRUCTED AND THAT YOU LACK THE TECHNICAL KNOWLEDGE TO OPERATE OR PERFORM MAINTENANCE ON A PIECE OF MAGNUM VENUS PRODUCTS EQUIPMENT, PLEASE CALL MAGNUM VENUS PRODUCTS BEFORE OPERATING OR PERFORMING MAINTENANCE ON THE EQUIPMENT. IF YOU HAVE ANY QUESTIONS REGARDING THE ABOVE PRECAUTIONS OR ANY SERVICE OR OPERATION PRECEDURES, CALL YOUR MAGNUM VENUS PRODUCTS DISTRIBUTOR OR MAGNUM VENUS PRODUCTS.

NOTICE: *All statements, information and data given herein are believed to be accurate and reliable but are presented without guaranty, warranty or responsibility of any kind express or implied. The user should not assume that all safety measures are indicated or that other measures are not required.*

DANGER: *Contaminated catalyst may cause Fire or Explosion. Before working on the catalyst pump or catalyst accumulator, wash hands and tools thoroughly. Be sure work area is free of dirt, grease or resin. Clean catalyst system components with clean water only.*

DANGER: Eye, skin and respiration hazard. The Catalyst, MEKP, may cause blindness, skin irritation or breathing difficulty. Keep hands away from face. Keep food and drink away from work area.

WARNING: Please refer to your catalyst manufacturer's safety information regarding the safe handling and storage of catalyst. Wear appropriate safety equipment as recommended.



Introduction:

The Digital Monitor is designed to display the resin rate and resin total as well as the glass rate and glass total. By using a sensor assembly, signals are sent to the control box from the resin pump. These signals are then converted to produce the Resin Rate and Resin Total. In the same way a glass sensor assembly is used to send signals to the control box to produce the Glass Rate and Glass Total.

The Monitor is designed to be modular so that if one component becomes inoperative the rest of the system will continue to operate and the inoperative component can easily be replaced. It is easily configured for use on multiple pump systems.

After a simple calibration procedure the monitor will accurately display the Resin and Glass Rate as well as the Resin and Glass Totals. After the system has been calibrated it only needs to be checked periodically for quality control. The monitor may need to be fine tuned if a different resin is used or if the pumping system becomes worn and less efficient.

CB-6000-RGT-APS – Includes the APS Resin sensor hardware kit – see CSD-1000-APS

CB-6000-RGT-HV – Includes the HV Resin sensor hardware kit – see CSD-1000-HV

CB-6000-RGT-PAT – Includes the Patriot Resin sensor hardware kit – see PAT-SENS-100

CB-6000-RGT-UPS – Includes the UPS Resin sensor hardware kit – see UPS-1000-UPS

Optional Valve Configuration:

The CB-6000-RGT Monitor can be configured with a special valve to send an air signal. This feature is helpful for use with the auto gun configurations. It can also be used to limit the amount of material applied to a part for a hand held system. This signal can be used to turn OFF a resin pump and chopper or ON/OFF some other device. After counting up to a “Set Point” the number of counts on the **resin total** the unit will then send a signal.

Note: a Triggering package may be required for use with the Automatic gun configurations, as well as the valves to control the gun.

If your system includes the special valve package proceed to Section “Quick Start - Set Point” for the Digital Readout, other wise proceed to Section “Calibration – Resin Total & Rate”.





Quick Start – Set Point:

The Digital Readout is designed to display the resin rate and resin total as well as the glass rate and glass total. After counting up to a preset number of counts on the **resin total** display the unit will then send a signal. This signal can be used to turn OFF a resin pump and chopper or ON/OFF some other device.

After the initial setup and calibration you just input the Set Point Value and the pumping system will turn OFF at that value.

Determining the Set Point Value:

There are a couple of methods of calculating the Set Point for your part.

Set the counter at the maximum setting or very high for the first operation. Once you have filled your part with the desired amount of material note the number on the display. This number becomes your Preset. Enter the number into your Preset, when the counts reach that number the pump will shut off and the display will reset to zero.

Another method to determine your Set Point is to:

1. Test sample resin by cycling the resin pump 10 full up and down strokes and note the number that appears on the display.
2. Weigh the resin sample that was discharged from the pump.
3. Divide the desired amount (weight) of resin required to produce the part by the amount (weight) of the resin sample discharged in the step above (step #2)

$$\frac{A \text{ (desired weight)}}{B \text{ (resin sample weight)}} = C$$
4. Multiply the number noted in step #1 by C the number derived in step #3. This becomes your Preset, enter this number into your Preset, when the counts reach that number the pump will shut off and the display will reset to zero.

FOR SYSTEMS WITH AUTOMATIC VALVING:

QUICK START: To Reset the Set Point Value

1. Plug the unit into a power source and turn the power switch to ON.
2. Locate the **Resin Total readout unit**, the lower left display.
3. The readout will display zero (0).

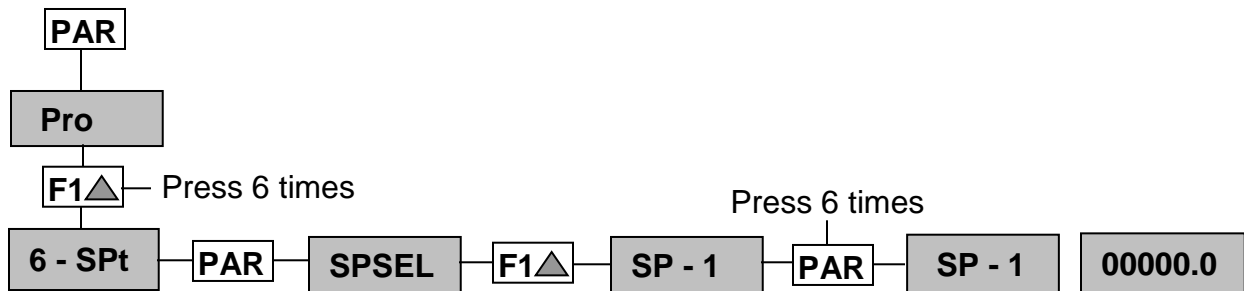
0.0



Note: Pressing the **DSP** will exit the programming process with out saving.

4. Press the **PAR** button this will display **Pro**. The display will automatically switch between the setting and **Pro**.
5. With the display showing **Pro** press the **F1▲** or **F2▼** until **6 - SPt** is displayed. Six times for **F1** and four times for **F2**.
6. Press the **PAR** button once, then press the **F1▲** or **F2▼** until **SP - 1** is displayed.
7. Now press the **PAR** button six times until **SP - 1** is displayed again. The display will automatically switch between the set point number and **SP - 1**. Use the **RST** button to select the column and use the **F1▲** and **F2▼** to enter the desired Set Point number.
8. To save the changes press the **PAR** until **END** is displayed.

QUICK REFERENCE:



Use the **RST** to select the numeric column and the **F1▼** and **F2▼** to change its value. Enter the desired Set Point number then press **PAR** through the remaining parameters until the display reads **END**.

Note: Pressing the **DSP** will exit the programming process without saving.



Calibration – Resin Total & Rate:

Setup and Installation -

The Resin Total counter needs to be calibrated to display the desired value. This is done by entering a Scaling Factor into the Resin Total display. The scaling factor will depend on many factors, including the specific gravity of the resin, efficiency of the pumping system, size of the pumping system and number of counts per stroke. Once calibrated the unit will accurately display the total amount of material dispensed in the units desired. The units of measure are determined by the weight measure used i.e. 1 can be either pounds or kilograms, which ever you choose.

The Resin Rate counter needs to be calibrated to display the desired value. This is done by entering a Display Value and Input Value into the Resin Rate meter. These two Values are determined by the material used, time units and units of measure desired i.e. kilograms per minute or pounds per minute. Once calibrated the unit will accurately display the rate at which the material is being dispensed in the units desired.



The Resin Rate meter should display the “ r ” at the left of the window to display the rate properly.

The Resin Total meter should display the “ A ” at the upper left of the window to display the total properly.

• RESIN TOTAL SCALING FACTOR

The number of input counts is multiplied by the scale factor (**ASCFAC**) to obtain the desired process value. This is accomplished by the counter mode (**A Cnt**), scale factor (**ASCFAC**), scale multiplier (**ASCALr**) and decimal point (**AdECPt**).



QUICK START:

Enter a number into the scale factor parameter (**ASCFAC**). Pump some material and weigh the output then adjust the scale factor parameter accordingly to obtain the correct total. Repeat this process until the unit displays the correct amount of material pumped, the unit is now calibrated. Check that the following parameters and adjust the scale factor accordingly:

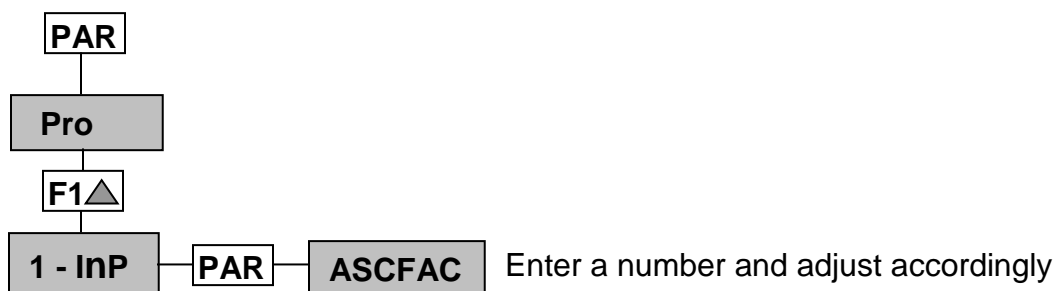
(**A Cnt**) **cnt** = one count per pulse (recommended), **cnt 2** = two counts per pulse

(**AdECPt**) = **0.0** adjust the scale factor according to desired units (x10 – 0.0)

(**ASCALr**) = **1** multiplies scale by one (no change, recommended)

Periodically check the output weight to confirm the calibration and adjust accordingly. The calibration should be automatically checked if a different resin is used or any changes are made to the pumping system. The calibration process can be conducted before the catalyst system is primed, that way the resin can be processed through the gun for a more accurate calibration and the resin can be returned to the source without fear of catalization. In this case the total weight will be off by the amount of catalyst used.

QUICK REFERENCE:



Use the **RST** to select the numeric column and the **F1▼** and **F2▼** to change its value.

Enter the desired Set Point number then press **PAR** through the remaining parameters until the display reads **END**.

Note: Pressing the **DSP** will exit the programming process without saving.

THE SCALE FACTOR IS CALCULATED USING:

$$\text{SF (ASCFAc)} = \frac{\text{Desired Display Decimal DDD}}{(\text{Number of pulses per "single" unit} \times \text{CM} \times \text{SM})}$$

<u>Desired Displayed Decimal DDD</u>	<u>(AdECPt)</u>	<u>Counter Decimal Selection</u>
1	0	None
10	0.0	Tenths
100	0.00	Hundredths
1000	0.000	Thousandths

Number of pulses per "single" unit: pulses per unit generated by the process (i.e. # of pulses per Pound or Kilogram)

CM: Counter Mode (**A cnt**) times factor of the mode 1, 2 or 4. (**MVP default 1 (cnt)**)

SM: Scale Multiplier (**ASCALr**) selection of 1, 0.1 or 0.01 (**MVP sets to default 1**)

Notes: One gallon of water = 8.33 pounds (3.78 kg)
 One gallon = 231 cubic inches (3785 cc)
 One cubic centimeter (cc) or milliliter (ml) = 1gram of water
 Resin Specific Gravity: weight of 1 gallon of resin in pounds ÷ 8.33
 (weight in pounds of 1 gallon of water).

Follow are some examples of show how to calculate the Scale Factor using both metric and imperial units. There are also work sheets available in chapter 7 of this manual that will allow for entering the data for any particular application / material.

Number of pulses per stroke – the number of pulses per one stroke generated by the sensor assembly install on your system. It is best to adjust the sensor assembly so that it is centered on the pump stroke this will help to stabilize the rate readings.

Resin Weight per volume (cubic inches, cubic centimeter, gallons or liters) – The weight of one unit of measure you wish to display - **or Specific Gravity** of the resin.

Volumetric displacement of the fluid sections:

Units / Stroke	Fluid Section						
	VLS-2400	VLS-4600	HVLS-1000	MLS-2400	MLS-4600	PAT-LS-12270	PAT-LS-24050
ci / Stroke	2.4	4.5	11.3	3.7	7.27	2.4	4.8
Gallons/Stroke	0.01039	0.01948	0.04892	0.01602	0.03147	0.01039	0.02078
cc / Stroke	39.336	73.755	185.207	60.643	119.1553	39.336	78.672
Liter / Stroke	0.04	0.074	0.185	0.061	0.119	0.04	0.079

For our purposes here let us base our Rates on Pounds or Kilograms per minute with one decimal place (DDD = 10). We need the **number of pulses per Pound or Kilogram** so from the information above we calculate

When working in pounds we can determine pounds per stroke or strokes per pound.

Pounds per Stroke Calculation – assume nine (9) pounds per gallon - check the Data sheet or MSDS sheet for your actual weight.

Multiply the weight per gallon by the gallons per stroke (from above chart) by

$$\begin{array}{rcl} \text{Resin weight per Unit (Pounds per gallon)} & - & 9.00 \text{ (insert your actual weight)} \\ \text{Gallons per stroke} & - & \times 0.03147 \text{ (from chart above MLS-4600)} \\ \text{Pounds per stroke} & - & 0.28323 \end{array}$$

$$\begin{array}{rcl} \text{Now convert that to Strokes per pound} & - & 1.00 \\ & & \div 0.28323 \text{ (pounds per stroke)} \\ & = & 3.5307 \text{ (strokes per pound)} \end{array}$$

Now to determine **pulses per pound** multiply by the number of strokes per pound by the number pulses per stroke. For our purposes here let us assume four (4) pulses per stroke.

$$\begin{array}{rcl} \text{Strokes per pound} & - & 3.5307 \\ \text{Pulses per stroke} & - & \times 4.00 \\ \text{Pulses per Pound} & - & 14.1228 \text{ (round to 14 Pulses per Pound)} \end{array}$$

Kilogram per Stroke Calculation – using Specific Gravity: if you know the specific gravity of the resin you can find the weight of the resin in grams by multiplying cc (cubic centimeter) by the specific gravity (cc's to grams, multiply by specific gravity). Based on the example above we can know the specific gravity is 1.08 (9 pounds (1 gallon of resin) ÷ 8.33 pounds (1 gallon of water) = 1.08 specific gravity)

Multiply cc per stroke by the specific gravity to get gram per stroke –

$$\begin{array}{rcl} \text{Cc per Stroke} & - & 119.1553 \text{ (from the chart above MLS-4600)} \\ \text{Specific Gravity} & - & \times 1.08 \\ \text{Grams per Stroke} & - & 128.6877 \end{array}$$

$$\begin{array}{rcl} \text{To convert that to Strokes per gram} & - & 1.00 \\ & & \div 128.6877 \text{ (grams per stroke)} \\ & = & 0.00777075 \text{ (strokes per gram)} \end{array}$$

$$\text{Multiply by 1000 to get Kilogram} - 7.77075 \text{ (strokes per kilogram)}$$

Now to determine **pulses per kilogram** multiply the number of strokes per kilogram by the number pulses per stroke. For our purposes here let us assume four (4) pulses per stroke.

Strokes per kilogram – 7.77075
 Pulses per stroke – x 4.00
Pulses per Kilogram – 31.083 (round to 31 Pulses per Kilogram)

From above: SF (**ASCFAC**) = $\frac{\text{Desired Display Decimal DDD}}{(\text{Number of pulses per "single" unit} \times \text{CM} \times \text{SM})}$

Resin Total Scale Factor (pounds) –

Display Decimal place 10 (10 = 0.0 decimal display)
 Pulses per pound – $\div 14$
 Scale Factor (**ASCFAC**) = **0.7143**

Resin Total Scale Factor (kilograms) –

Display Decimal place 10 (10 = 0.0 decimal display)
 Pulses per Kilogram – $\div 31$
 Scale Factor (**ASCFAC**) = **0.3226**

• **RESIN RATE SCALING VALUES:**

The resin rate is specified by two programmable parameters: A desired Rate Display Value (**rdSP 1**) and a corresponding Rate Input Value (**r InP 1**).

QUICK START:

Enter a value into the display value (**rdSP 1**) and Input value (**r InP 1**)

Display Value (**rdSP 1**) = **60** represents minutes
 Input Value (**r InP 1**) = **50** (any number as a starting point)

If the resin total meter is working run the pump for one minute and the displayed rate during that minute should be equal to the total amount of resin displayed after one minute. For a more accurate metering, run the tests for a longer period of time. The calibration can be conducted before the catalyst system is primed, that way the resin can be processed through the gun for a more accurate calibration and the resin can be returned to the source without fear of catalization.

The decimal place can be adjusted by multiplying the values by 10 or 100 (see above), both values must be raised and lower by the same proportion i.e. if the display value is raised by a multiple of 10 then the input value must be raised by the same. Both values must be greater than 0.0.

The Resin Rate can be calculated by:

If the number of pulses per “single” unit (i.e. # of pulses per pound) is known, then it can be entered as the Scaling Input value and the Scaling Display value will be entered as the following:

Display Value (**rdSP 1**) 1 = seconds, 60 = minutes and 3600 = Hours

Input Value (**r INP 1**) = # of pulses per unit

Notes:

1. The decimal place can be adjusted by multiplying the values by 10 or 100, both values must be raised and lower by the same proportion i.e. if the display value is raised by a multiple of 10 then the input value must be raised by the same.
2. Both values must be greater than zero (0).

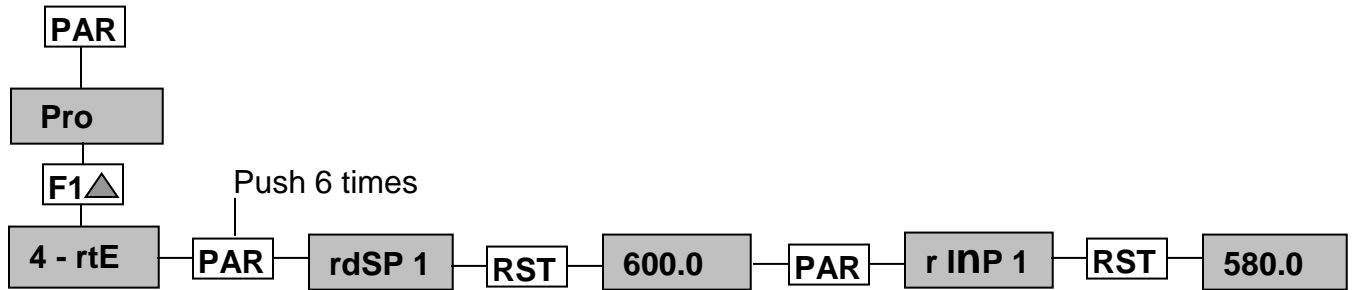
From above we know that there are **14 Pulses per Pound** and
31 Pulses per Kilogram

Resin Display Value = 60 for minutes multiplied by the decimal place $\times 10 = 0.0$

Minutes =	60
Decimal place:	$\times 10$
Display Value (rdSP 1)	600 (pounds or kilogram per minute)

Resin Rate Input value:	Pounds	Kilogram
Pulses per pound	14	31
Decimal display	$\times 10$	$\times 10$
Input Value (r INP 1) =	140	310

This number may need to be adjusted for the resin viscosity and specific gravity but it is a starting point. Make note of all materials used (resin data sheet), pump settings, nozzle size and nozzle type this will help to duplicate this setup in the future.

QUICK REFERENCE:

Use the **RST** to select the numeric column and the **F1▼** and **F2▼** to change its value.

Enter the desired Set Point number then press **PAR** through the remaining parameters until the display reads **END**.

Note: Pressing the **DSP** will exit the programming process without saving.



Calibration – Glass Total & Rate:

Setup and Installation -

The Glass Total counter needs to be calibrated to display the desired value. This is done by entering a Scaling Factor into the Glass Total display. The scaling factor will depend on the Glass yield the number of strands being use. Once calibrated the unit will accurately display the total amount of material processed in the units desired. The units of measure are determined by the weight measure used i.e. 1 can be either pounds or kilograms, which ever you choose.

The Glass Rate counter needs to be calibrated to display the desired value. This is done by entering a Display Value and Input Value into the Glass Rate meter. These two Values are determined by the material used, time units and units of measure desired i.e. kilograms per minute or pounds per minute. Once calibrated the unit will accurately display the rate at which the material is being dispensed in the units desired.

Notes: Yield – yards per pound
 Tex – gram per one kilometer of glass
 One revolution or pulses = 3.767 inches or 95.682 mm

One yard equals 36 inches, so we divide 36 by 3.767 and get **9.5567 - the number of pulses per yard.**

One Kilometer equals 1000000 millimeters, so we divide 1000000 by 95.682 mm and get **10451.3 – the number of pulses per kilometer.**



The Glass Rate meter should display the “ r ” at the left of the window to display the rate properly.

The Glass Total meter should display the “ A ” at the upper left of the window to display the total properly.



• GLASS TOTAL SCALING FACTOR

The glass total scaling factor is calibrated using the same procedure as the resin total scaling factor only on the glass total meter. The glass total can be setup a couple of different ways depending on how many strands of glass are being used. The total can include both strands of glass or calculated for one strand and then doubled to give the correct total.

The number of input counts is multiplied by the scale factor (**ASCFAC**) to obtain the desired process value. This is accomplished by the counter mode (**A Cnt**), scale factor (**ASCFAC**), scale multiplier (**ASCALr**) and decimal point (**AdECPt**).

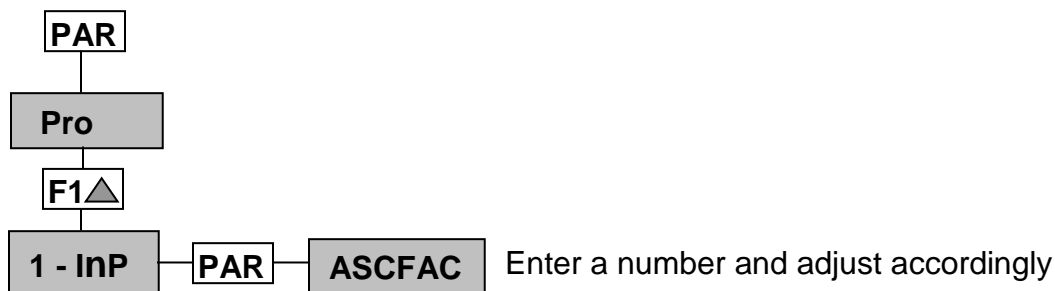
QUICK START:

Enter a number into the glass total scale factor parameter (**ASCFAC**). Activate the chopper and output some glass into a bag and weigh the output then adjust the scale factor parameter accordingly to obtain the correct total. Repeat this process until the unit displays the correct amount of glass, the unit is now calibrated. The larger the test sample the more accurate the totals meter will be. Check that the following parameters and adjust the scale factor accordingly:

(**A Cnt**) **cnt** = one count per pulse (recommended), **cnt 2** = two counts per pulse
(AdECPt) = 0.0 adjust the scale factor according to desired units (x10 – 0.0)
(ASCALr) = 1 multiplies scale by one (no change)

Periodically check the output weight to confirm the calibration and adjust accordingly. The calibration should be automatically checked if a different glass Yield or Tex is used.

QUICK REFERENCE:



Use the **RST** to select the numeric column and the **F1▼** and **F2▼** to change its value. Enter the desired Set Point number then press **PAR** through the remaining parameters until the display reads **END**.

Note: Pressing the **DSP** will exit the programming process without saving.

- **GLASS RATE SCALING VALUES:**

The glass rate is specified by two programmable parameters: A desired Rate Display Value (**rdSP 1**) and a corresponding Rate Input Value (**r InP 1**).

QUICK START:

Enter a value into the display value (**rdSP 1**) and Input value (**r InP 1**)

Display Value (**rdSP 1**) = **60** represents minutes

Input Value (**r InP 1**) = **1000** (any number as a starting point)

If the glass total meter is working run the chopper for one minute and the displayed rate during that minute should be equal to the total amount of glass displayed after one minute. The rate may jump up and down a little; this is due to the sampling rate and pulses counted during that time.

The decimal place can be adjusted by multiplying the values by 10 or 100, both values must be raised and lower by the same proportion i.e. if the display value is raised by a multiple of 10 then the input value must be raised by the same. Both values must be greater than 0.0.

THE GLASS RATE CAN BE CALCULATED BY:

If the number of pulses per “single” unit (i.e. # of pulses per pound or kilogram) is known, then it can be entered as the Scaling Input value and the Scaling Display value will be entered as the following:

Display Value (**rdSP 1**) 1 = seconds, 60 = minutes and 3600 = Hours

Input Value (**r INP 1**) = # of pulses per unit

Notes:

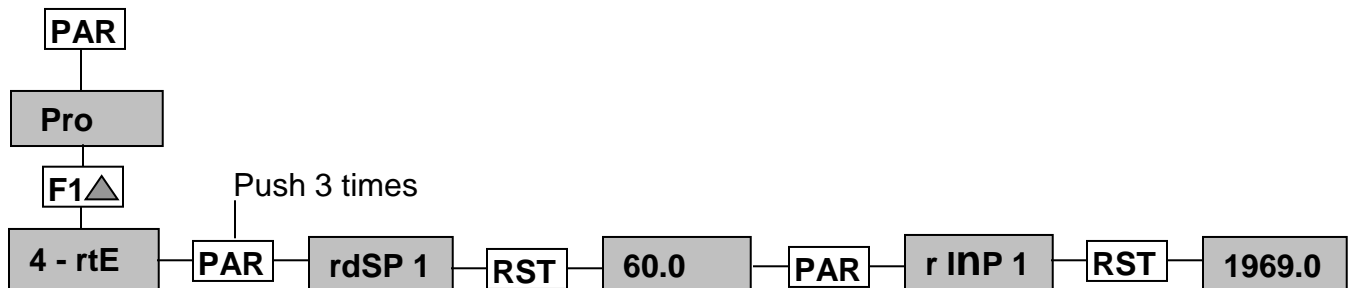
1. The decimal place can be adjusted by multiplying the values by 10 or 100, both values must be raised and lower by the same proportion i.e. if the display value is raised by a multiple of 10 then the input value must be raised by the same.
2. Both values must be greater than zero (0).

Glass Rate in Pounds – Display Value (rdSP 1 = 60)
Input Value (r Inp 1 = 1969) per strand of glass

Glass Rate in Kilograms – Display Value (rdSP 1 = 60)
Input Value (r Inp 1 = 4355) per strand of glass

This number may need to be adjusted slightly up or down to more accurately reflect the true output. Make several tests at different chopper speeds to help fine tune the accuracy. Make note of all materials used and chopper settings this will help to duplicate this setup in the future.

QUICK REFERENCE:



Use the **RST** to select the numeric column and the **F1** and **F2** to change its value. Enter the desired Set Point number then press **PAR** through the remaining parameters until the display reads **END**.

Note: Pressing the **DSP will exit the programming process without saving.**



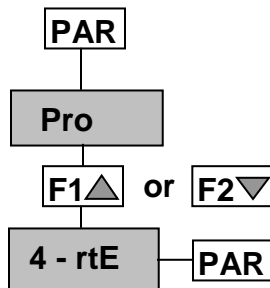
Meter Setup Sheets:

RESIN RATE METER SETUP SHEET:

4 – rtE Rate Input Parameters

<u>Display</u>	<u>Description</u>	<u>MVP Setting</u>	
rAtEEn	Rate Assignment	rAtE – A	
LO- Udt	Low Update Time	2.0	
HI – Udt	High Update Time	4.0	
rtE dP	Rate Decimal Point	0.0	
rdSP 1	Display Value	60	Enter value
r InP 1	Input Value	1000.0	Enter value

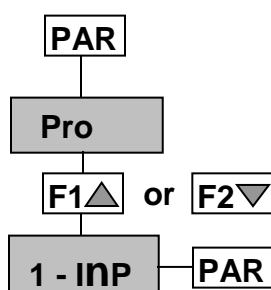
QUICK REFERENCE:



RESIN TOTAL METER SETUP SHEET:**I – INP Counter A Input Parameters**

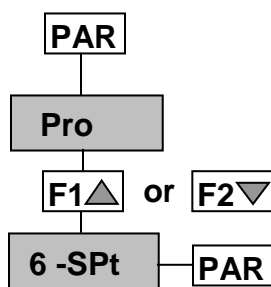
<u>Display</u>	<u>Description</u>	<u>MVP Setting</u>	
A Cnt	Operating Mode	cnt	
ArESEt	Reset Action	2ErO	
AdECPt	Decimal Position	0.0	
ASCFAC	Scale Factor	1	Enter factor here
ASCALr	Scale Multiplier	1	
ACNtLd	Count Load Factor	0	
A P-UP	Reset Power-Up	YES	

(All other parameters in I – INP remain as set by the factory)

QUICK REFERENCE:**6 – SPt Setpoint (alarm) Parameters****SP – 1 settings**

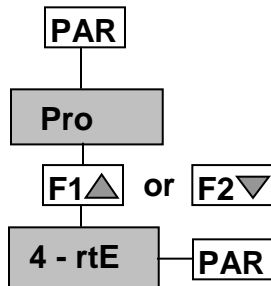
<u>Display</u>	<u>Description</u>	<u>MVP Setting</u>	
Lit – 1	Annunciators	nor	
Out – 1	Output Logic	nor	
SUP – 1	Power Up State	off	
Act – 1	Action	tOUt	
ASn – 1	Assignment	A Cnt	
SP – 1	Setpoint Value	100	Enter signal out value
tOUt – 1	Setpoint Time Out	2.00	
AUtO – 1	Auto Reset Action	2ErOAE	
rSd -1	Reset with Display	yes	

(All other parameters remain as set by the factory)

QUICK REFERENCE:

GLASS RATE METER SETUP SHEET:**4 – rtE Rate Input Parameters**

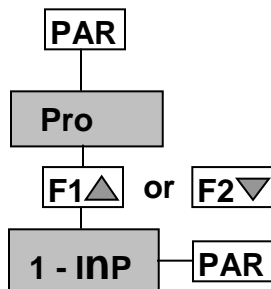
<u>Display</u>	<u>Description</u>	<u>MVP Setting</u>	
rAtEEn	Rate Assignment	rAtE – A	
LO- Udt	Low Update Time	2.0	
HI – Udt	High Update Time	4.0	
rtE dP	Rate Decimal Point	0.0	
rdSP 1	Display Value	60	Enter value
r InP 1	Input Value	1000.0	Enter value

QUICK REFERENCE:

GLASS TOTAL METER SETUP SHEET:**I – INP Counter A Input Parameters**

<u>Display</u>	<u>Description</u>	<u>MVP Setting</u>	
A Cnt	Operating Mode	cnt	
ArESEt	Reset Action	2ErO	
AdECPt	Decimal Position	0.0	
ASCFAc	Scale Factor	1	Enter factor here
ASCALr	Scale Multiplier	1	
ACNtLd	Count Load Factor	0	
A P-UP	Reset Power-Up	yes	

(All other parameters in I – INP remain as set by the factory)

QUICK REFERENCE:



Optional Remote Reset:

Using the items listed below:

1 @ 09125	Bulk head fitting
1 @ 9807-2-1	Pressure Switch
1 @ 9807-1-1	Operator
1 @ 09068	Bracket
1 @ 08801	Fitting
1' @ 08810	1/8 Tubing (plus length to push button)
1 @ 08802	Fitting
1 @ 07223	Fitting
3' @ 08247-BC	Wire
1 @ 09169	Push Button

Mount the switch (9807-2-1) in the desired location in the control box and connect the operator (9807-1-1) to the switch (9807-2-1). Using wire (08247-BC), connect the switch to terminals #7 and #10 on the back of the Resin meter. Mount the push button (09169) at the remote location and connect with the tubing (08810), one end of the tubing to the air supply and the other end to the operator (9807-1-1) on the switch (9807-2-1).

When you push the button an air signal is sent to the operator on the switch and the circuit between terminals #7 and #10 is closed causing the resin meter to reset.





Calculation Work Sheets:

- **Resin Calculations work sheet:**
- **Glass Calculations work sheet:**
- **Resin Quick Start work sheet**
- **Glass Quick Start work sheet**



Resin Calculations work sheet:

- **Pounds per Stroke Calculation** – check Data sheet or MSDS sheet for your actual weight.

Resin weight per Unit (Pounds per gallon) – _____ (insert your actual weight)
 Gallons per stroke – _____ x _____ (from chart above)
 Pounds per stroke – _____

To convert that to Strokes per pound – $\frac{1.00}{\text{pounds per stroke}}$
 = _____ **(strokes per pound)**

Strokes per pound – _____
 Pulses per stroke – _____ x _____
Pulses per Pound – _____ **(round to the nearest Pulse per Pound)**

Resin Total Scale Factor (pounds) –

Display Decimal Place _____ (1 = 0 or 10 = 0.0 or 100 = 0.00 decimal display)
 Pulses per pound – _____ ÷ _____
 Scale Factor (**ASCFAC**) = _____

- **Kilogram per Stroke Calculation – using Specific Gravity:** (see material data sheet)

Cc per Stroke – _____ (from the chart above)
 Specific Gravity – _____ x _____
 Grams per Stroke – _____ **(grams per stroke)**

To convert that to Strokes per gram – $\frac{1.00}{\text{grams per stroke}}$
 = _____ **(strokes per gram)**

Multiply by 1000 to get Kilogram – _____ **(strokes per kilogram)**

Strokes per kilogram – _____
 Pulses per stroke – _____ x _____
Pulses per Kilogram – _____ **(round to the nearest Pulse per Kilogram)**

Resin Total Scale Factor (kilograms) –

Display Decimal place _____ (1 = 0 or 10 = 0.0 or 100 = 0.00 decimal display)
 Pulses per kilogram – _____ ÷ _____
 Scale Factor (**ASCFAC**) = _____

Resin Rate Values: Display Value (**rdSP 1**) 1 = seconds, 60 = minutes and 3600 = Hours
 Input Value (**r INP 1**) = # of pulses per unit

Adjust the decimal place by multiplying the values by 1, 10 or 100, both values must be adjusted by the same proportion.

Time units = _____ (1 = seconds, 60 = minutes and 3600 = Hours)
 Decimal place: _____ x _____ (1 = 0 or 10 = 0.0 or 100 = 0.00 decimal display)
 Display Value (**rdSP 1**) = _____

Resin Rate Input value: Pounds

Kilogram

Pulses per unit -

Decimal display -

Input Value (**r INP 1**)

x _____
=

x _____ (1 = 0 or 10 = 0.0 or 100 = 0.00 decimal display)

Glass Calculations work sheet:

- **Pounds per Yard Calculation (Yield)** – Check your material to determine actual Yield.

Pulses per yard 9.5567 (pulses per yard)
 Yards per pound x _____ (Yield)
Pulses per pound = _____ Round to _____ (pulses per pound per strand of glass).

If using two strands of glass divide by two: _____ ÷ 2 = _____.

Glass Total Scale Factor (pounds) – (per strand of glass)

Display Decimal place - _____ (1 = 0 or 10 = 0.0 or 100 = 0.00 decimal display)
 Pulses per pound – ÷ _____
Scale Factor (ASCFAC) =

- **Kilogram per Stroke Calculation – using Tex:** Check material for actual Tex.

Convert Tex (grams per kilometer) to (kilogram per kilometer) (Tex ÷ 1000) _____ ÷ 1000 =

Now convert that to Kilometers per Kilogram – ÷ _____ (kilograms per kilometer)
Kilometers per Kilogram =

Pulses per kilometer – 10451.3
 Kilometer per kilogram – x _____
Pulses per Kilogram – _____ (Pulses per Kilogram)

Glass Total Scale Factor (kilograms) – (per strand of glass)

Display Decimal place _____ (1 = 0 or 10 = 0.0 or 100 = 0.00 decimal display)
 Pulses per Kilogram – ÷ _____
Scale Factor (ASCFAC) =

Glass Rate Values:

Display Value (**rdSP 1**) 1 = seconds, 60 = minutes and 3600 = Hours

Input Value (**r INP 1**) = # of pulses per unit

The decimal place can be adjusted by multiplying the values by 1, 10 or 100, both values must be raised and lower by the same proportion

Time units = _____ (1 = seconds, 60 = minutes and 3600 = Hours)
 Decimal place: x _____ (1 = 0 or 10 = 0.0 or 100 = 0.00 decimal display)
Display Value (rdSP 1)



Glass Rate Input value: Pounds Kilogram

Pulses per unit -

Decimal display - x_____ x_____ (1 = 0 or 10 = 0.0 or 100 = 0.00 decimal display)

Input Value (r INP 1) =

Resin Rate and Resin Total Quick Start work sheet:

Resin Rate and Resin Total Calibration – Quick Start Method:

To Calibrate the Resin Rate and Resin Total using the Quick Start Method –

First setup the program parameters for the two displays as noted on the setup sheets in the back of the manual. Now you setup the unit to recalculate the material.

Then take a weight measurement (pounds or kilograms) for one minute. This is your Resin Rate per minute.

- The Resin Rate is specified by two programmable parameters: The Rate Display Value and a corresponding Rate Input Value. The Display Value is the time base, so set the Display Value to 60 for minutes. Now adjust the Input Value so that the Rate displayed equals the measurement taken. Be sure not to change any of the pump settings or you will need to take another weight measurement.
- The Resin Total is specified by the Scale Factor parameter and should equal the Resin Rate for one minute. Adjust the Scale Factor so that the Resin Total displays the resin rate for every minute pumped. Push the total reset and time one minute the amount displayed should equal the rate displayed.

Repeat this process until the unit displays the correct amount and rate of material pumped; the Resin Rate and Total Displays are now calibrated.

For a more accurate metering, run the tests for a longer period of time.

The calibration can be conducted through the return valve at the filter or before the catalyst system is primed, so the resin can be processed through the gun and then be returned to the source without fear of catalization.

Glass Rate and Glass Total Quick Start work sheet:

Quick Start setup for Glass Rate and Glass Total Calibration

Before activating the chopper be sure the pump pressure is set to zero and the fluid pressures have been relieved.

The Glass Rate and Glass Total are calibrated using the same procedure as the resin rate and total only on the glass meters. The glass rate and total can be setup a couple of different ways depending on how many strands of glass are being used. The total can include both strands of glass or calculated for one strand and then doubled to give the correct total.

To Calibrate the Glass Rate and Glass Total using the Quick Start Method –

First setup the program parameters for the two displays as noted on the setup sheets in the back of the manual.

Now run the chopper of one minute catching the glass into a bag then take a weight measurement (pounds or kilograms). This is your Resin Rate per minute.

- The Glass Rate is specified by two programmable parameters: Rate Display Value and a corresponding Rate Input Value. The Display Value is the time base so set the Display Value to 60 for minutes. Activate the chopper and note the rate. Now adjust the Input Value so that the Rate displayed equals the measurement taken. Be sure not to change the chopper setting or you will need to take another weight measurement.
- The Glass Total is specified by the Scale Factor parameter and should equal the Glass Rate for a minute. Adjust the Scale Factor so that the Glass Total displays the glass rate for every minute active. Push the total reset and time for one minute the amount displayed should equal the rate displayed.

Repeat this process until the unit displays the correct amount of glass, the unit is now calibrated.

Again for a more accurate metering, run the tests for a longer period of time.

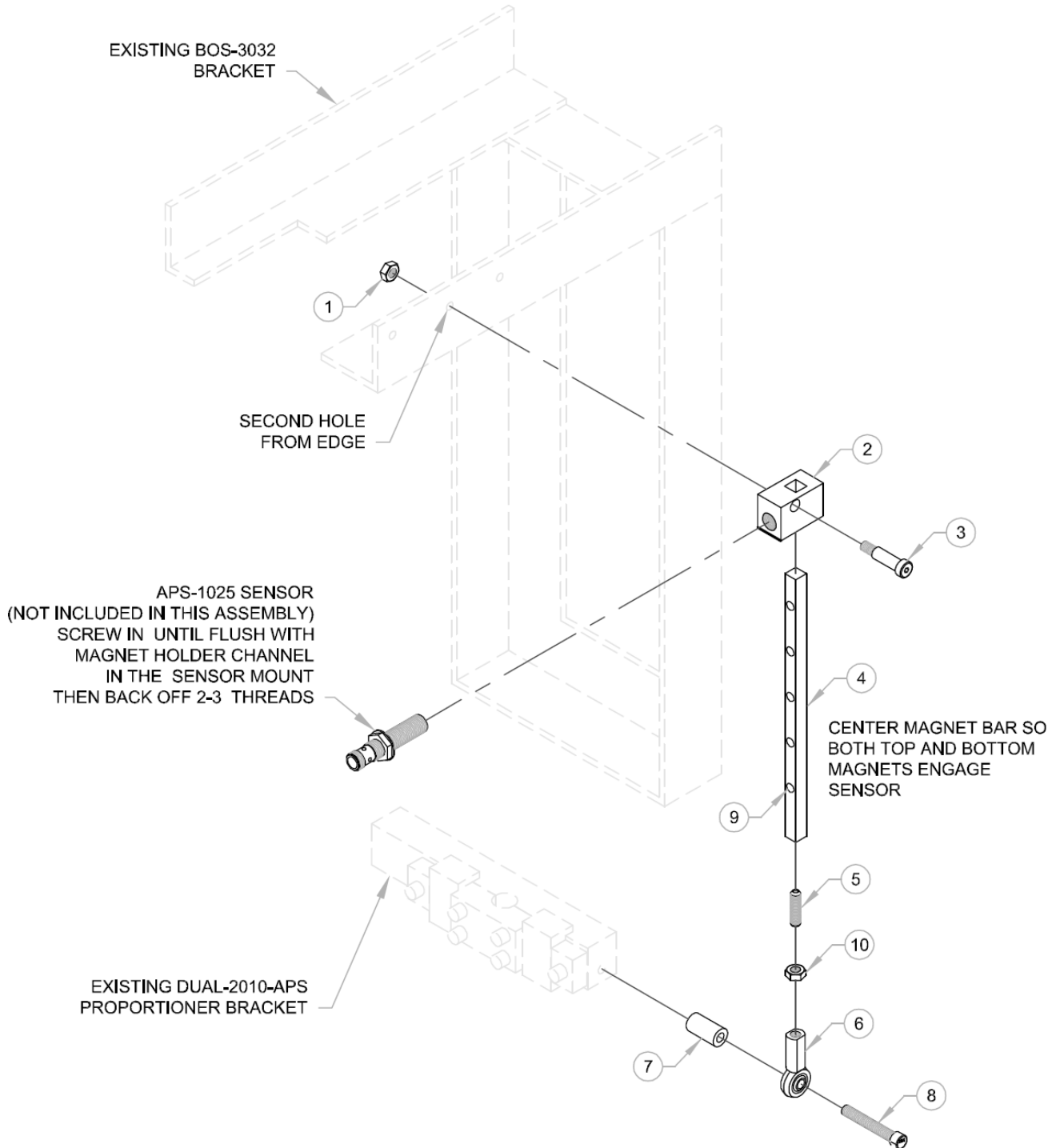
Periodically check the output weight to confirm the calibration and adjust accordingly.



Parts Drawings:

CSD-1000-UPS	RESIN SENSOR ASSEMBLY – APS
CSD-1000-APS	RESIN SENSOR ASSEMBLY – HV
CSD-1000-HV	RESIN SENSOR ASSEMBLY – UPS
PAT-SENS-100	RESIN SENSOR ASSEMBLY – PATRIOT
<ul style="list-style-type: none">• CONTROL BOX CONNECTIONS DRAWING• SYSTEM CONNECTIONS DIAGRAM• CONTROL BOX INPUT PANEL	
79280-1	GLASS SENSOR ASSEMBLY
CSD-1006	BASE PLATE – SENSOR MOUNTING





MAGNUM VENUS PLASTECH

Hardware Kit - APS Resin Sensor

CSD-1000-APS

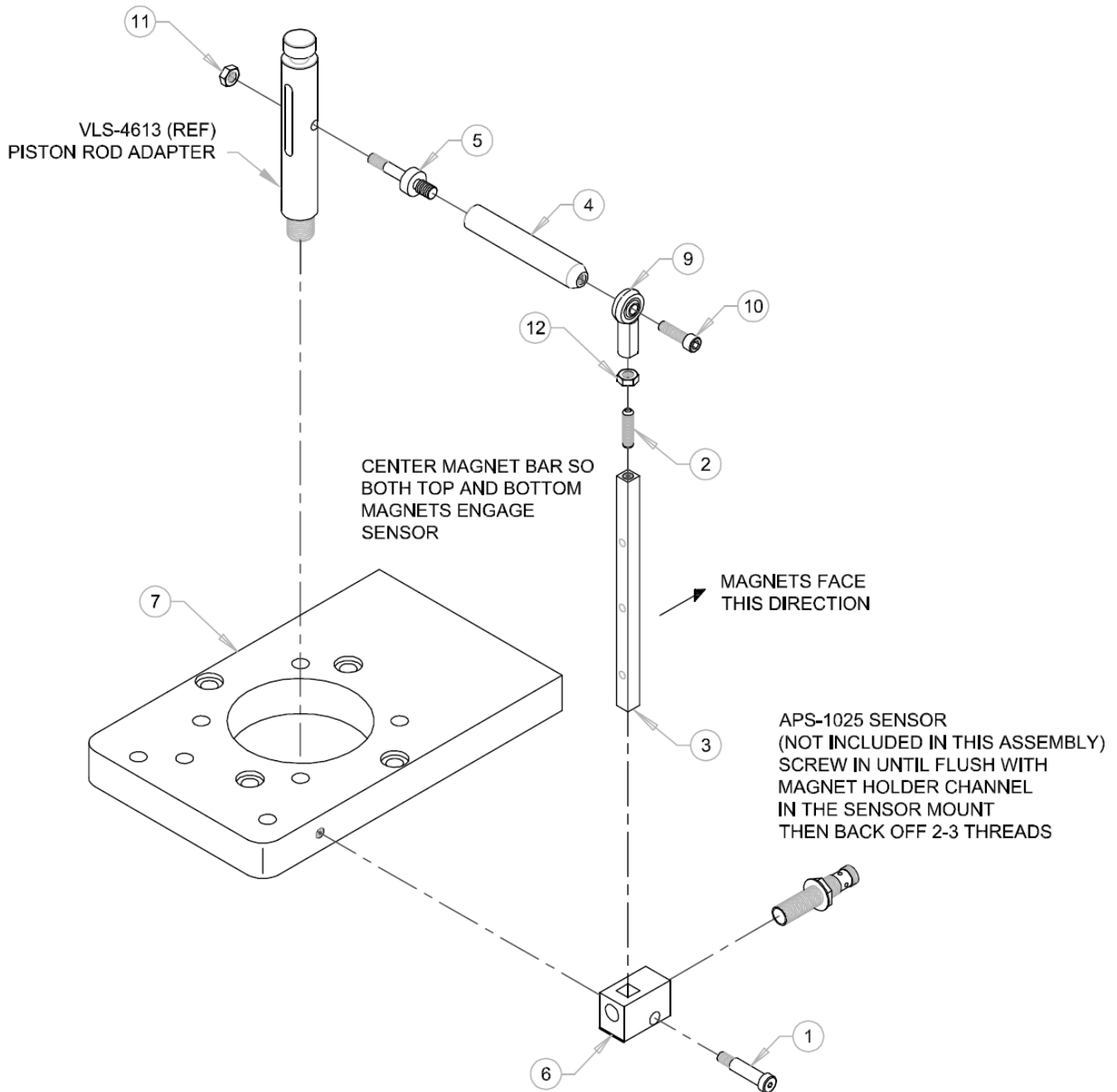
REV. 08-25-06 BT2
 REV. A - ITEM 1 WAS QTY. 2, ADDED ITEM 10 04-24-07 BT2
 REV. C - ADDED BUBBLE I.D. FOR ITEM 9 12-09-09 BT2
 REV. D - ADDED APS-1025 AND NOTE TO ILLUSTRATION, ITEM 3 WAS F-SB-05-14 02-07-13 BT2

Hardware Kit - APS Resin Sensor CSD-1000-APS**PARTS LIST**

ITEM	PART NO.	QTY	DESCRIPTION
1	F-JN-04C-SS	1	JAM NUT
2	CSD-1005-M12	1	SENSOR MOUNT
3	F-SB-05-14	1	SHOULDER BOLT
4	CSD-1002-APS	1	MAGNET HOLDER
5	7102-15-16	1	SET SCREW
6	CSD-1008	1	ROD END
7	CSD-1010	1	SPACER
8	F-CS-04C-28	1	CAP SCREW
10	F-HN-04F-SS	1	HEX NUT

OPTIONAL PARTS AND ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
9	CSD-1007	5	MAGNET
	APS-1025		PROXIMITY SENSOR



MAGNUM VENUS PLASTECH

Hardware Kit - HVLS Resin Sensor

CSD-1000-HV

REV. 09-18-07 BT2
REV. A - ADDED APS-1025 AND NOTE TO ILLUSTRATION 02-07-13 BT2

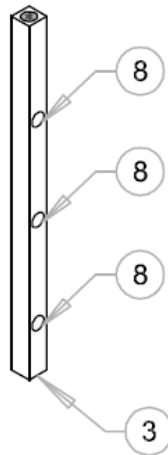
Hardware Kit - HVLS Resin Sensor CSD-1000-HV

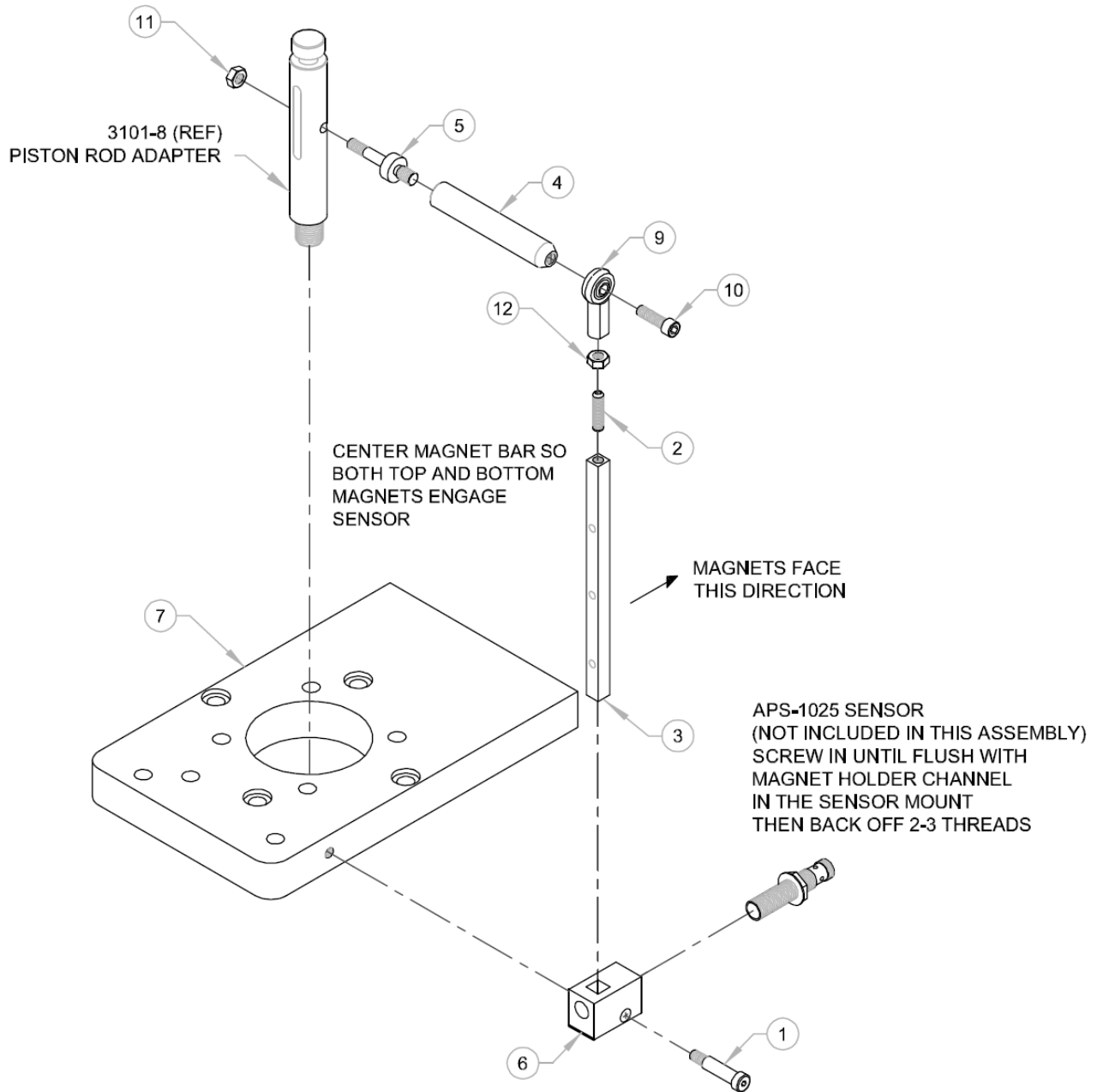
PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	02670-8	1	SHOULDER BOLT
2	7102-15-16	1	SET SCREW
3	CSD-1002	1	ASSY - MAGNET HOLDER
4	CSD-1003-UPS	1	CONNECTING ROD
5	CSD-1004-UPS	1	PIN - CAT SENSOR MNT
6	CSD-1005-M12	1	SENSOR MOUNT
7	HVLS-1002-CSD	1	MODIFIED PUMP PLATE
9	CSD-1008	1	ROD END
10	F-CS-04C-12	1	SOCKET HEAD CAP SCREW
11	F-HN-04C	1	HEX NUT
12	F-HN-04F	1	HEX NUT

OPTIONAL PARTS AND ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
6A	CSD-1005-M8	1	SENSOR MOUNT
8	CSD-1007	3	MAGNET
	APS-1025		PROXIMITY SENSOR





MAGNUM VENUS PLASTECH

Hardware Kit - UPS Resin Sensor

CSD-1000-UPS

REV. A - UPDATED KIT DESCRIPTION 06-21-06 BT2
REV. B - ADDED ITEM 8 TO ITEM 3, MOVED ITEM 8 TO OPTIONAL PARTS 06-29-06 JEM
REV. C - ADDED APS-1025 AND NOTE TO ILLUSTRATION 02-07-13 BT2

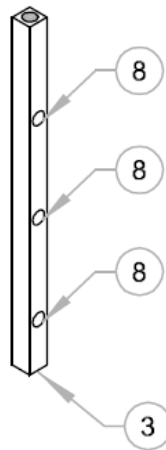
Hardware Kit - UPS Resin Sensor CSD-1000-UPS

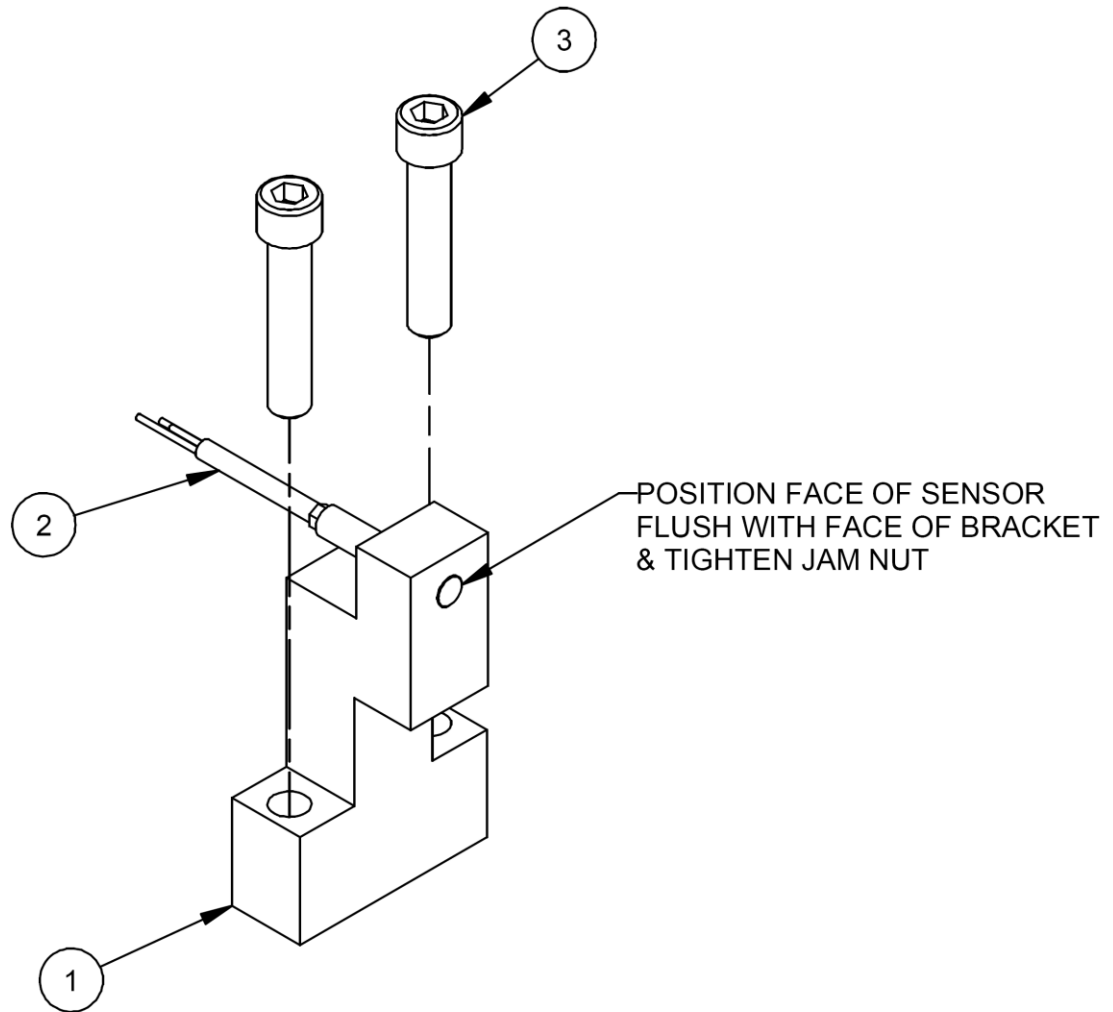
PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	02670-8	1	SHOULDER BOLT
2	7102-15-16	1	SET SCREW
3	CSD-1002	1	ASSY - MAGNET HOLDER
4	CSD-1003-UPS	1	CONNECTING ROD
5	CSD-1004-UPS	1	PIN - CAT SENSOR MNT
6	CSD-1005-M12	1	SENSOR MOUNT
7	CSD-1006	1	MODIFIED PUMP PLATE
9	CSD-1008	1	ROD END
10	F-CS-04C-12	1	SOCKET HEAD CAP SCREW
11	F-HN-04C	1	HEX NUT
12	F-HN-04F	1	HEX NUT

OPTIONAL PARTS AND ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
6A	CSD-1005-M8	1	SENSOR MOUNT
8	CSD-1007	3	MAGNET





3	F-CS-04C-20	2	SOCKET HEAD CAP SCREW
2	E-SEN-102	1	PROX. SENSOR
1	PAT-BRKT-SM	1	SENSOR BRACKET

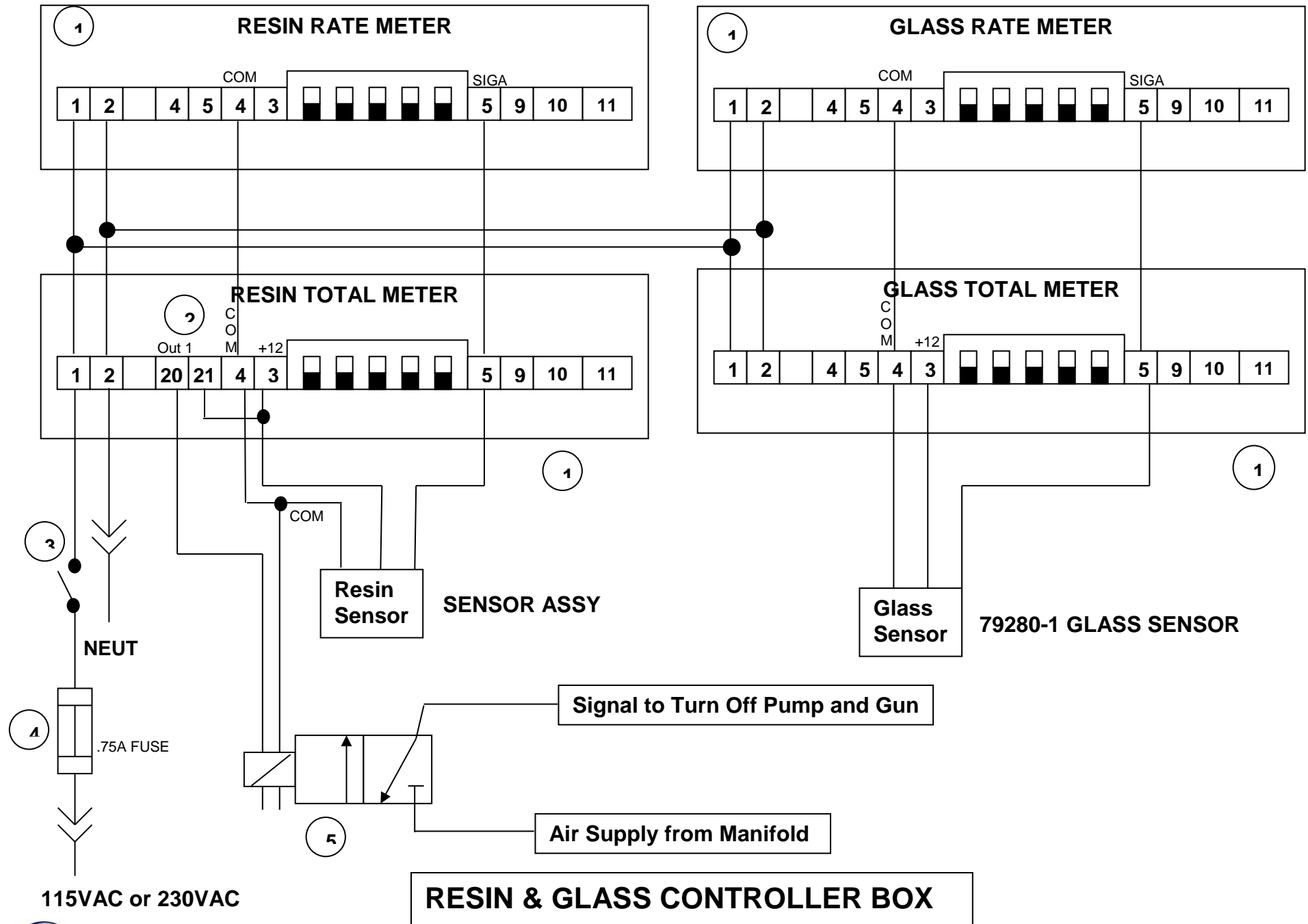
MAGNUM VENUS PRODUCTS

SENSOR ASSY.

PAT-SENS-100

REV:



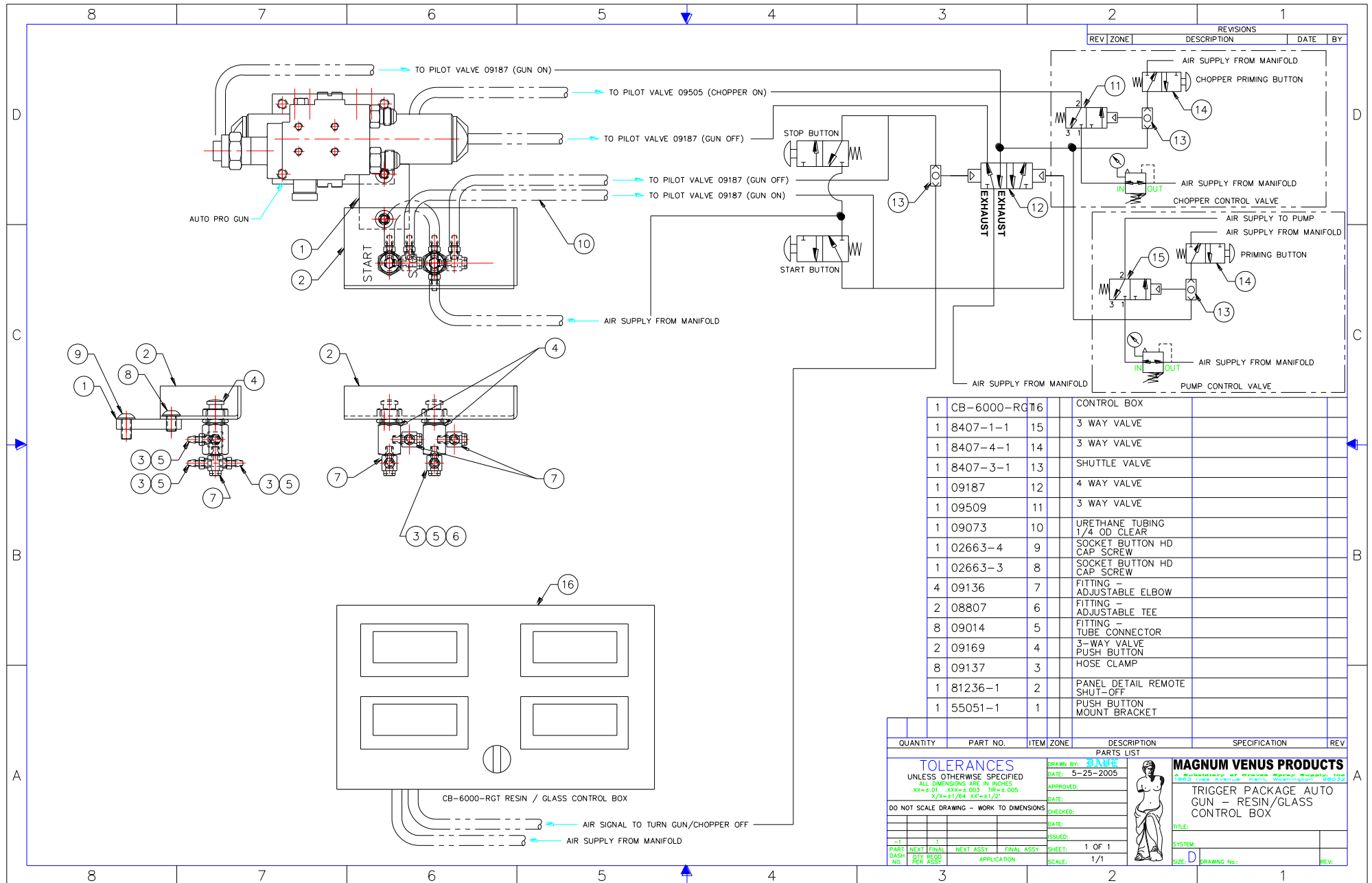


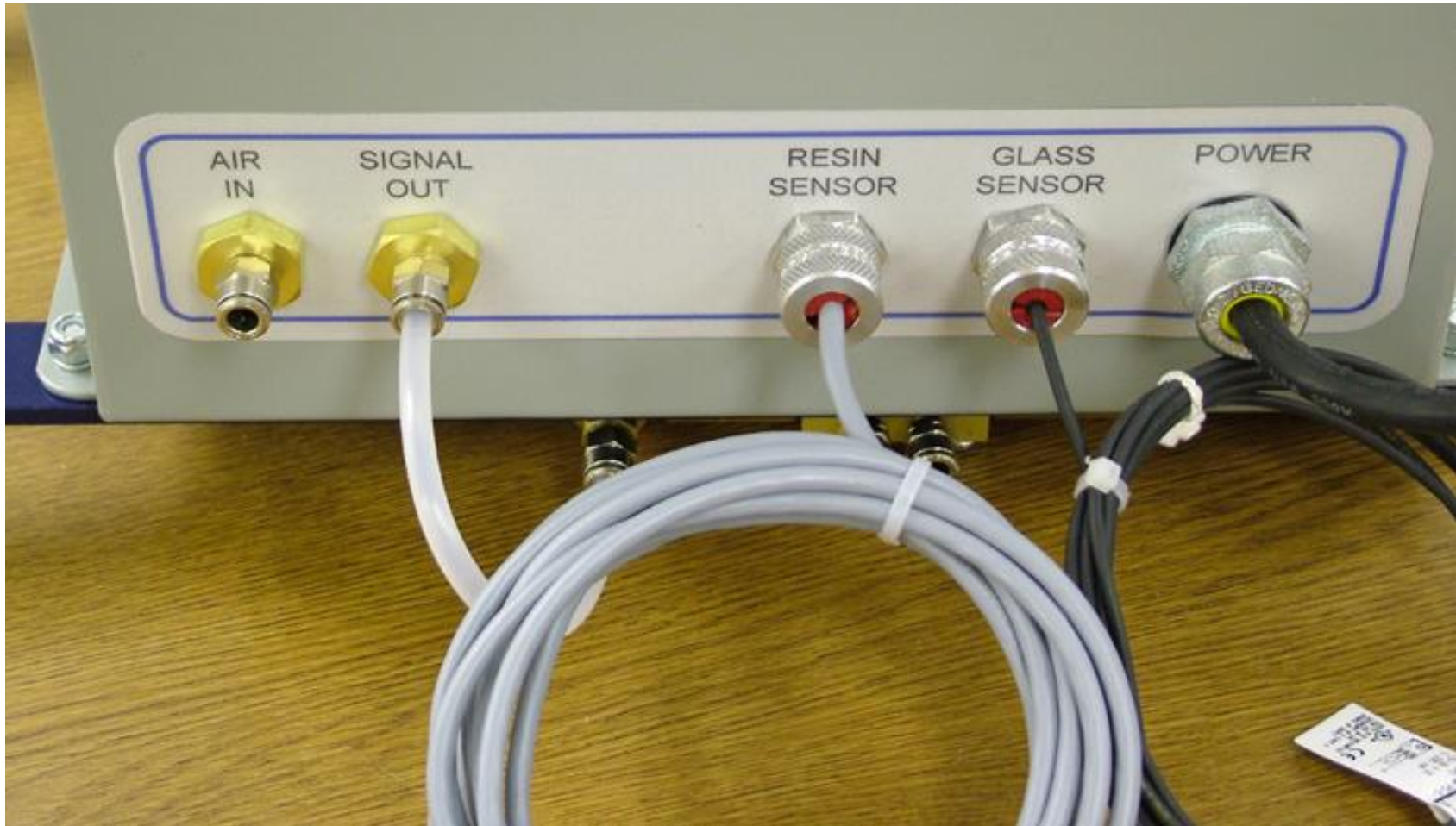
RESIN / GLASS CONTROLLER BOX

PARTS LIST

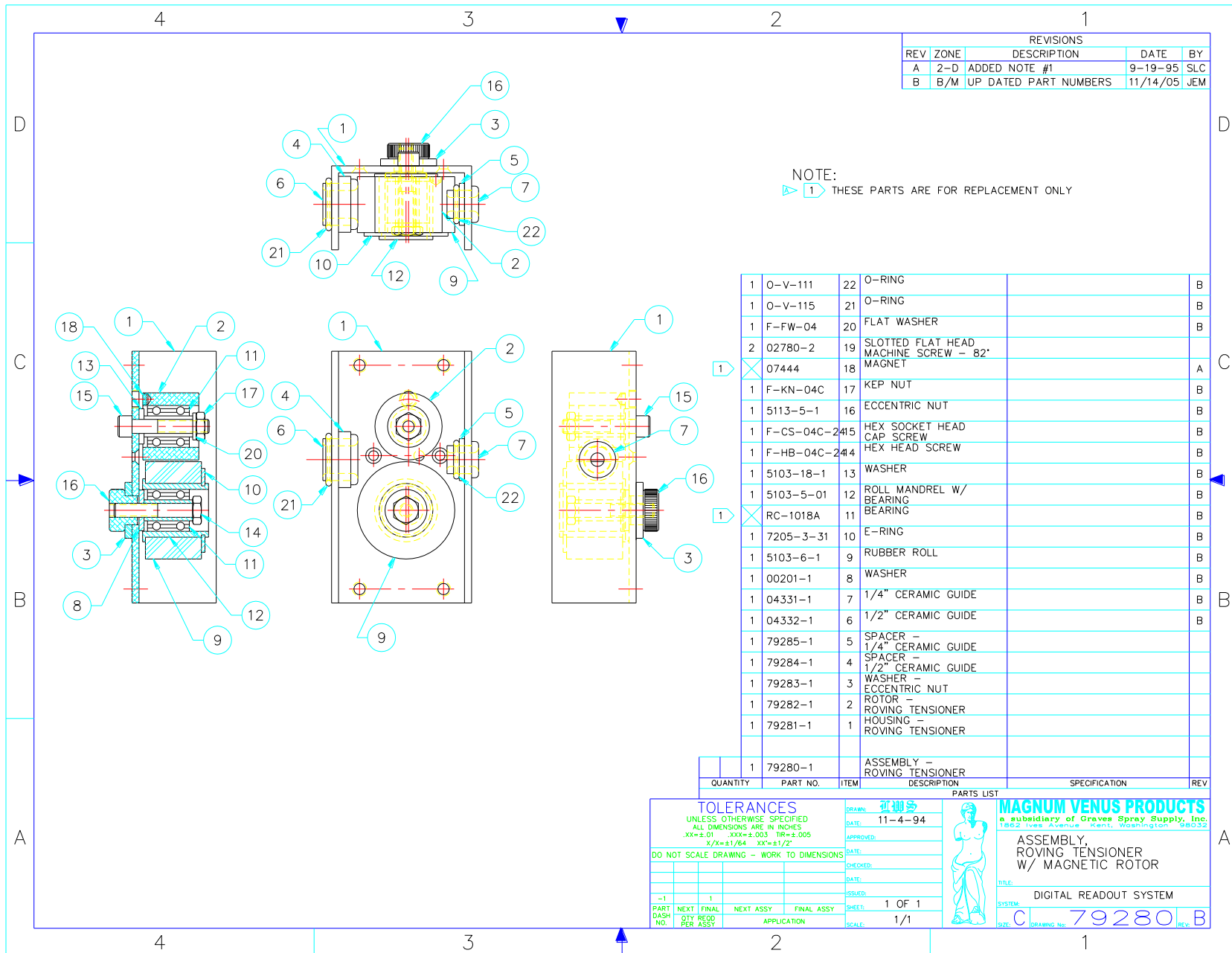
ITEM	PART NO.	QTY.	DESCRIPTION
1	E-CRM-101	4	READ OUT
2	E-RM-101	1	RELAY MODUAL
3	06042	1	2 POSTION SWITCH
4	08332	1	.75 AMP FUSE
5	07254	1	SOLENOID VALVE

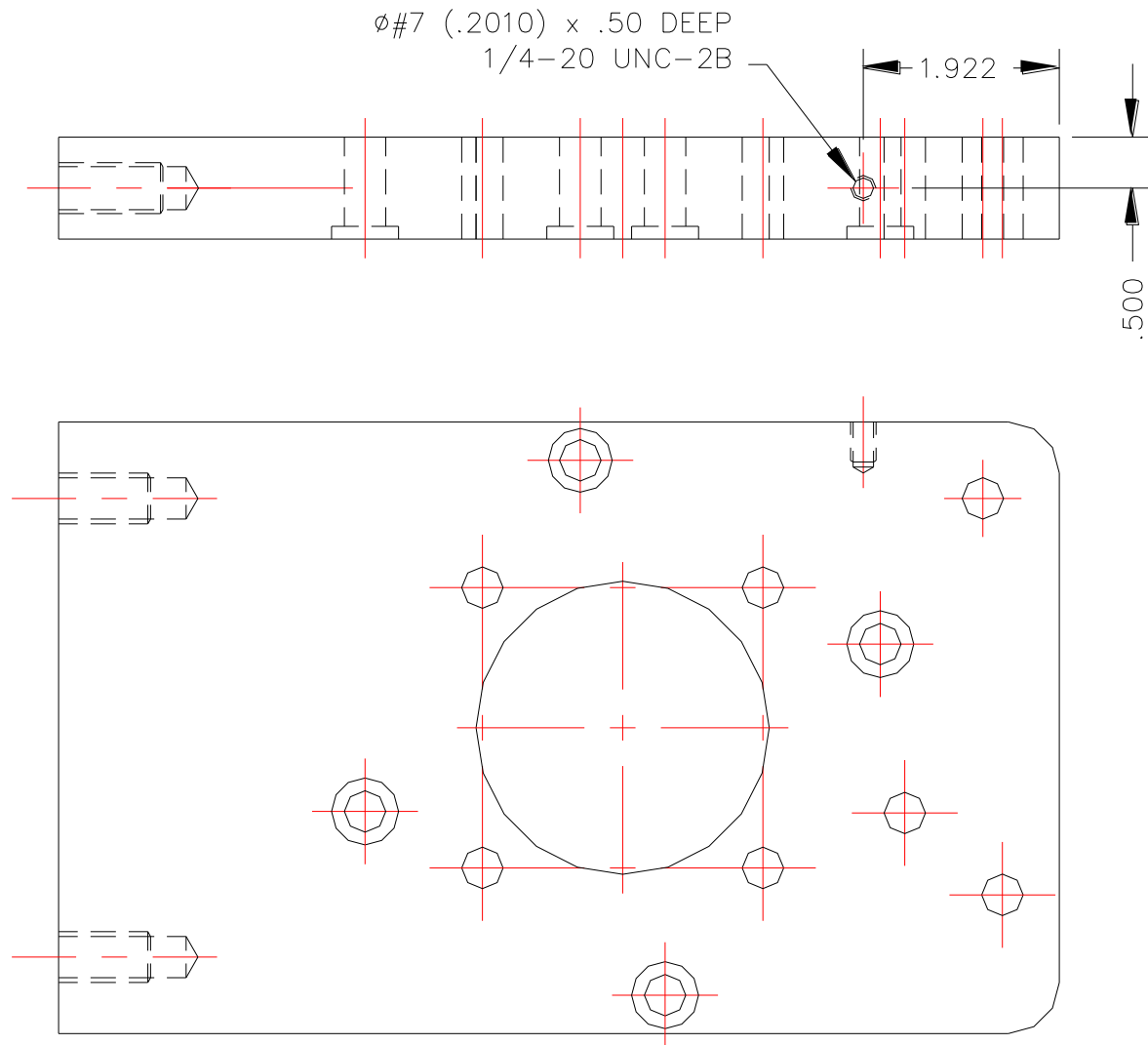
NOTE: Item number 2 is used with the special valve package.





Control Box Input Panel





CSD-1006 BASE PLATE - SENSOR MOUNTING HOLE

Use for modifying existing base plate to mount CSD-1000 sensor



Revision Information:

- Rev. 10/2012** Updated the manual format and Address. Added the Terms & Conditions of Sale section and also added the Revision Information Section to the manual. Updated with the Patriot version information.
- Rev. 07/2014** Updated the Logo and Name. Updated the Terms & Conditions of Sale section and drawings. Removed reference to Plastech. Corrected Glass calculation to – divide by two, for two strands of glass.





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